

# **INFORMATION HANDOUT**

## **PERMIT / AGREEMENT / CERTIFICATION**

STATE OF CALIFORNIA DEPARTMENT OF FISH AND GAME

NOTIFICATION #: 1600-2012-0057R1

U.S. ARMY CORPS OF ENGINEERS

NON-REPORTING NATIONWIDE #14

NORTH COAST WATER QUALITY BOARD

WDID No: 1B12014WNHU

U.S. FISH AND WILDLIFE SERVICE, SECTION F CONCURRENCE

## **MATERIALS INFORMATION**

GEOTECHNICAL DATA REPORT

DAMAGE ASSESSMENT FORM (DAF) –Report No. CSC-CT01-198

OPTIONAL EQUIPMENT STAGING AREA

**CALIFORNIA DEPARTMENT OF FISH AND GAME**  
NORTHERN REGION  
601 LOCUST STREET  
REDDING, CALIFORNIA, 96001



**STREAMBED ALTERATION AGREEMENT**  
NOTIFICATION No. 1600-2012-0057-R1  
SOUTH FORK EEL RIVER

CALIFORNIA DEPARTMENT OF TRANSPORTATION  
REPAIR STORM DAMAGE ON STATE ROUTE 254 PROJECT

This Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Game (DFG) and California Department of Transportation (Permittee) as represented by Frank Demling.

## **RECITALS**

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, Permittee notified DFG on February 8, 2012, that Permittee intends to complete the project described herein.

WHEREAS, pursuant to FGC section 1603, DFG has determined that the project could substantially adversely affect existing fish or wildlife resources and has included measures in the Agreement necessary to protect those resources.

WHEREAS, Permittee has reviewed the Agreement and accepts its terms and conditions, including the measures to protect fish and wildlife resources.

NOW THEREFORE, Permittee agrees to complete the project in accordance with the Agreement.

## **PROJECT LOCATION**

The project is situated on three Unnamed Tributaries of the South Fork of the Eel River, a tributary to the Pacific Ocean. The project is located along Highway 254 approximately 1.3 miles south of the town of Meyers Flat in the County of Humboldt, State of California; NE ¼ Section 20, Township 2 South, Range 3 West, Humboldt Base and Meridian (Latitude 40° 16.58' 71" N and Longitude 123° 51' 32.71" W); Myers Flat U.S. Geological Survey 7.5 Minute Quadrangle Map.

## **PROJECT DESCRIPTION**

The project is limited to three encroachments to replace culverts on two ephemeral drainages and one spring-fed drainage (Drainage System 1, Drainage System 2, and Drainage System 3). There are three underdrain systems that will be installed upslope of the streams or within roadway paralleling the highway (Drainage System 5, Drainage

System 6, and Drainage System 7). The underdrain systems are outside the associated streams bed, bank and channel, and were determined to be not jurisdictional under California Fish and Game Code Section 1600 (et seq.).

Drainage System 1 is located at Post Mile (PM) 11.03, and is a seasonal ephemeral stream with a well-defined channel with sorted gravels and pools upstream and downstream of the crossing. The existing 24-inch diameter by 48.2-foot long metal culvert will be replaced with a similar sized and situated metal culvert, and additional rock slope protection (RSP) will be added to the culvert outlet. The culvert size is undersized for the channel width (approximately 3-feet wide at inlet), however, there is an existing cement headwall at the culvert inlet that prohibits enlarging the headwall and culvert size without potentially impacting an associated 36-inch diameter at breast height (DBH) coast redwood (*Sequoia sempervirens*) on the bank. In addition, California State Parks has requested that this coast redwood not be impacted with the project activities

Drainage System 2 is located at PM 11.05, and is a seasonal ephemeral stream without a well-defined channel at inlet (swale) and "shot-gunned" culvert outlet that drains into a rocky channel, which is a tributary to Drainage System 1. The existing 18-inch diameter by 86-foot long metal culvert will be replaced with a 24-inch by 77.9-foot long metal culvert. The replacement will include relocation of culvert inlet 8-feet south of existing inlet, and will have a 36-inch by 16-foot deep concrete inlet. The outlet will have a 24-inch by 6-foot downdrain attached that will discharge onto installed RSP at the outfall.

Drainage System 3 is located at PM 11.09, and is a small perennial spring-fed stream with seasonal intermittent surface flows. The inlet collects hillslope spring seepage within the Drainage Systems 2 and 3 swale area, and the outlet discharges onto a rocky stream bed and channel. Additional seasonal flow from an inboard ditch along the highway is received into the outlet area of the stream. The existing 36-inch by 7.5-foot deep concrete inlet will be replaced with a 36-inch by 10-foot deep inlet in the same location. The existing 24-inch by 106-foot metal culvert will be replaced with a similar sized culvert and additional RSP will be added at the outlet. Two Douglas-fir (*Pseudotsuga menziesii* var. *menziesii*) trees (28-inch DBH and 24-inch DBH) associated with culvert inlet may be removed as the roots will be impacted with the inlet replacement and the trees potentially destabilized.

## PROJECT IMPACTS

The Unnamed Tributaries to Eel River are not fish bearing streams, and as tributaries to the Eel River are listed by the U.S. Environmental Protection Agency as sediment and temperature impaired under section 303(d) of the Clean Water Act.

Existing listed or sensitive aquatic taxa the stream alteration project could substantially adversely affect include, but not limited to: Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*O. kisutch*), steelhead trout (*O. mykiss*), coastal cutthroat

trout (*O. clarki clarki*), northern red-legged frog (*Rana aurora*), yellow-legged frog (*Rana boylei*), northwestern pond turtle (*Emys marmorata marmorata*), and southern torrent salamander (*Rhyacotriton variegatus*). Chinook salmon, coho salmon, and steelhead trout are regionally Federal listed as Threatened with coho salmon additionally listed with the State as Threatened. Coastal cutthroat trout, foothill yellow-legged frog, northern red-legged frog, northwestern pond turtle, and southern torrent salamander are designated as State Species of Special Concern. Drainage System 3 below the culvert outlet has perennial mesic to wet, rocky and shaded seep habitat for amphibians such as southern torrent salamander. A rough-skinned newt (*Taricha granulosa*) was observed below the culvert outlet during field review conducted with DFG and Permittee April 6, 2012.

Existing listed terrestrial wildlife the stream alteration project could substantially adversely affect include, but not limited to: marbled murrelet (*Brachyramphus marmoratus*), and northern spotted owl (*Strix occidentalis caurina*). Marbled murrelet is Federal listed as Threatened and State listed as Endangered. Northern spotted owl is Federal listed as Threatened.

There are known occurrences of two sensitive terrestrial plants in the project area that the stream alteration project could adversely affect: redwood lily (*Lilium rubescens*), and sticky pea (*Lathyrus glandulosus*). Redwood lily is a State Rare Plant Rank State 4.2 (Plants of Limited Distribution – a Watch list, and fairly endangered in California), and sticky pea is a 4.3 (Plants of Limited Distribution – a Watch list, and not very endangered in California).

The adverse effects the project activities could have on the fish or wildlife identified above include:

- Direct take of amphibians;
- Indirect take of fish and other aquatic species;
- Permanent and temporary alteration of stream bed, bank, and channel;
- Water flow restriction and debris transport impedance (culverts);
- Dewatering, rewatering, and diversion of flowing water around activity site;
- Temporary increase in turbidity and sediment into stream with project activities and post-project channel adjustments;
- Disruption to listed nesting birds;
- Direct take of sensitive terrestrial plants
- Temporary loss of riparian vegetation; and
- Colonization by invasive plants;

## **MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES**

### **1. Administrative Measures**

Permittee shall meet each administrative requirement described below.

- 1.1 Documentation at Project Site. Permittee shall make the Agreement, any extensions and amendments to the Agreement, and all related notification materials and California Environmental Quality Act (CEQA) documents, readily available at the project site at all times and shall be presented to DFG personnel, or personnel from another state, federal, or local agency upon request.
- 1.2 Providing Agreement to Persons at Project Site. Permittee shall provide copies of the Agreement and any extensions and amendments to the Agreement to all persons who will be working on the project at the project site on behalf of Permittee, including but not limited to contractors, subcontractors, inspectors, and monitors.
- 1.3 Notification of Conflicting Provisions. Permittee shall notify DFG if Permittee determines or learns that a provision in the Agreement might conflict with a provision imposed on the project by another local, state, or federal agency. In that event, DFG shall contact Permittee to resolve any conflict.
- 1.4 Project Site Entry. Permittee agrees that DFG personnel may enter the project site at any time to verify compliance with the Agreement.
- 1.5 DFG Notification of Work Initiation and Completion. The Permittee shall contact DFG within the 7-day period preceding the beginning of work permitted by this Agreement. Information to be disclosed shall include Agreement number, and the anticipated start date. Subsequently, the Permittee shall notify DFG no later than 7 days after the project is fully completed.

## **2. Avoidance and Minimization Measures**

To avoid or minimize adverse impacts to fish and wildlife resources identified above, Permittee shall implement each measure listed below.

- 2.1 Permitted Project Activities. Except where otherwise stipulated in this Agreement, all work shall be in accordance with the Permittee notification (Notification) received March 8, 2012, together with all maps, plans, photographs, drawings, and other supporting documents submitted with the Notification.
- 2.2 Work Period. Work within stream bed, bank and channel shall be confined to the period August 20 to October 31 of each year. The start work window date is specified by the Permittee to avoid northern spotted-owl nesting period and most of the marbled murrelet nesting period, which has an additional stipulation of no work being conducted 2 hours after dawn and 2 hours before sunset August 21 to September 15 of each year.

- 2.3 Vegetation Disturbance. Disturbance or removal of riparian vegetation shall not exceed the minimum necessary to complete operations. Only the two Douglas-fir trees associated with Drainage 3 inlet and identified in the Notification shall be removed if they are determined to be a stability and safety concern.
- 2.4 Revegetation. The project area shall be re-vegetated according to the Revegetation Plan included in the Notification.
- 2.5 Sensitive Plants. ESA fencing shall be installed prior to construction to protect the sensitive plant occurrences from direct impacts. In addition, weeding of highly invasive plants on-site, French broom (*Genista monspessulana*) and perennial sweetpea (*Lathyrus latifolius*), shall be conducted annually for the duration of the Revegetation Plan in the sensitive plant occurrence areas to address indirect and cumulative impacts to the sensitive plants through the spread and expansion of invasive plants with repeated disturbance along roadsides (displacement and habitat modification).
- 2.6 Equipment Limitations. Heavy equipment shall not operate in the flowing stream channel.
- 2.7 Equipment Cleaning. All heavy equipment that will be entering the stream corridor (defined here as stream bed, bank and channel, and within 50 feet of stream channel) shall be cleaned of materials deleterious to aquatic life including oil, lubricants, coolants, hydraulic fluid, soil and other debris. Cleaning of equipment shall take place outside of the stream corridor.
- 2.8 Equipment Maintenance. Refueling of heavy equipment, or adding or draining oil, lubricants, coolants or hydraulic fluids shall not take place within stream corridor. All such fluids and containers shall be disposed of properly off-site. Heavy equipment used or stored within stream corridor shall use drip pans or other devices (i.e., absorbent blankets, sheet barriers or other materials) as needed to prevent soil and water contamination.
- 2.9 Stream Protection. No debris, upland soil, rubbish, oil or petroleum products, or other deleterious material from project activities shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into the stream. When operations are completed, any excess materials or debris shall be removed from the project area.
- 2.10 Hazardous Spills. Any material, which could be hazardous or toxic to aquatic life and enters a stream (i.e. a piece of equipment tipping-over in a stream and dumping oil, fuel or hydraulic fluid), the Permittee shall immediately notify the California Emergency Management Agency State Warning Center at 1-800-852-7550, and immediately initiate clean-up activities. DFG shall be notified by the Permittee within 24 hours at 707-441-2075 and consulted regarding clean-up

procedures. The Permittee shall have a spill prevention plan and clean-up equipment on site during boring activities.

#### 2.11 General Culvert Installation.

- 2.11.1 Culverts shall extend lengthwise completely beyond the toe of fill, and shall be installed to grade and aligned with the natural stream channel. If the culvert outlet is placed higher in the fill, it shall be oriented in the lower third of the fill face and a downspout shall be used to carry flow from the outlet past the base of the fill or the outfall shall be directed onto bedrock, boulders, rock, or rip-rap.
- 2.11.2 Water flow shall be diverted (such as through the use of cofferdams) to isolate and dewater the work site, and to catch any sediment-laden water and minimize sediment transport downstream. Cofferdams shall be constructed of non-polluting materials including sand bags, rock, and/or plastic tarps. Mineral soil shall not be used in the construction of cofferdams.
- 2.11.3 No earthen material shall be placed in the flowing stream channel
- 2.11.4 Culvert segments (old and new) and other associated debris shall be removed from the stream corridor and properly disposed of off-site prior to October 31.

#### 2.12 Drainage System 3 Culvert Installation.

- 2.12.1 Prior to the start of construction a qualified biologist shall examine the culvert outlet stream reach at least 50-feet downstream of the end of project activities for presence of southern torrent salamander or other amphibians. If presence is determined, a qualified biologist shall relocate amphibians downstream of project area (poor habitat above culvert). If amphibians are relocated, barrier fencing shall be installed to prevent migration back into the project area during stream channel activities. The barrier fence shall fully span stream channel below the project activities, and be constructed with approximately 12-inch high hardware fabric with ¼ inch openings held in place with wooden stakes, and embedded several inches into substrate. The barrier fencing shall be removed after stream channel activities are completed. If southern torrent salamanders are detected, DFG shall be notified by the Permittee 30 days after amphibian surveys are completed at 707-441-2075.
- 2.12.2 The placement of rip-rap at the culvert outlet shall not utilize a plastic or fabric liner in order to maintain vertical migration corridors through the rocky seep substrates for amphibians.

- 2.13 Permanent Erosion Control Materials. Permittee shall utilize wildlife-friendly 100 percent biodegradable erosion control products that will not entrap or harm wildlife. Erosion control products shall not contain synthetic (e.g., plastic or nylon) netting or materials for permanent erosion control measures that will be left in place after completion of the project. Photodegradable synthetic products are not considered biodegradable.

2.14 Erosion Control. Any bare mineral soil exposed during activities outside the stream bed and channel shall be treated for erosion prior to the onset of precipitation capable of generating run-off or the end of the yearly work period, whichever comes first. Erosion control shall include mulching with at least 2 to 4 inches clean straw (such as rice, barley, wheat, or weed-free straw), and seeding with regional native seed or non-native seed that is known not to persist or spread (i.e., barley (*Hordeum vulgare*), or wheat (*Triticum aestivum*)). No annual or perennial ryegrass (*Lolium multiflorum* or *L. perenne*) shall be used.

## **CONTACT INFORMATION**

Any communication that Permittee or DFG submits to the other shall be in writing and any communication or documentation shall be delivered to the address below by U.S. mail, fax, or email, or to such other address as Permittee or DFG specifies by written notice to the other.

### To Permittee:

Mr. Frank Demling  
California Department of Transportation  
1656 Union Street  
Eureka, CA 95502  
Fax: (707) 441-5733  
Email: frank\_demling@dot.ca.gov

### To DFG:

Department of Fish and Game  
Northern Region  
619 2nd Street  
Eureka, CA 95501  
Attn: Lake and Streambed Alteration Program – Laurie Harnsberger  
Notification #1600-2012--0059-R1  
Fax: (707) 441 2021  
Email: lharnsberger@dfg.ca.gov

## **LIABILITY**

Permittee shall be solely liable for any violations of the Agreement, whether committed by Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents or contractors and subcontractors, to complete the project or any activity related to it that the Agreement authorizes.

This Agreement does not constitute DFG's endorsement of, or require Permittee to proceed with the project. The decision to proceed with the project is Permittee's alone.

## **SUSPENSION AND REVOCATION**

DFG may suspend or revoke in its entirety the Agreement if it determines that Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, is not in compliance with the Agreement.

Before DFG suspends or revokes the Agreement, it shall provide Permittee written notice by certified or registered mail that it intends to suspend or revoke. The notice shall state the reason(s) for the proposed suspension or revocation, provide Permittee an opportunity to correct any deficiency before DFG suspends or revokes the Agreement, and include instructions to Permittee, if necessary, including but not limited to a directive to immediately cease the specific activity or activities that caused DFG to issue the notice.

## **ENFORCEMENT**

Nothing in the Agreement precludes DFG from pursuing an enforcement action against Permittee instead of, or in addition to, suspending or revoking the Agreement.

Nothing in the Agreement limits or otherwise affects DFG's enforcement authority or that of its enforcement personnel.

## **OTHER LEGAL OBLIGATIONS**

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from obtaining any other permits or authorizations that might be required under other federal, state, or local laws or regulations before beginning the project or an activity related to it.

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with other applicable statutes in the FGC including, but not limited to, FGC sections 2050 *et seq.* (threatened and endangered species), 3503 (bird nests and eggs), 3503.5 (birds of prey), 5650 (water pollution), 5652 (refuse disposal into water), 5901 (fish passage), 5937 (sufficient water for fish), and 5948 (obstruction of stream).

Nothing in the Agreement authorizes Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, to trespass.

## **AMENDMENT**

DFG may amend the Agreement at any time during its term if DFG determines the amendment is necessary to protect an existing fish or wildlife resource.

Permittee may amend the Agreement at any time during its term, provided the amendment is mutually agreed to in writing by DFG and Permittee. To request an amendment, Permittee shall submit to DFG a completed DFG "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the corresponding amendment fee identified in DFG's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

## **TRANSFER AND ASSIGNMENT**

This Agreement may not be transferred or assigned to another entity, and any purported transfer or assignment of the Agreement to another entity shall not be valid or effective, unless the transfer or assignment is requested by Permittee in writing, as specified below, and thereafter DFG approves the transfer or assignment in writing.

The transfer or assignment of the Agreement to another entity shall constitute a minor amendment, and therefore to request a transfer or assignment, Permittee shall submit to DFG a completed DFG "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the minor amendment fee identified in DFG's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

## **EXTENSIONS**

In accordance with FGC section 1605(b), Permittee may request one extension of the Agreement, provided the request is made prior to the expiration of the Agreement's term. To request an extension, Permittee shall submit to DFG a completed DFG "Request to Extend Lake or Streambed Alteration" form and include with the completed form payment of the extension fee identified in DFG's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5). DFG shall process the extension request in accordance with FGC 1605(b) through (e).

If Permittee fails to submit a request to extend the Agreement prior to its expiration, Permittee must submit a new notification and notification fee before beginning or continuing the project the Agreement covers (Fish & G. Code, § 1605, subd. (f)).

## **EFFECTIVE DATE**

The Agreement becomes effective on the date of DFG's signature, which shall be: 1) after Permittee's signature; 2) after DFG complies with all applicable requirements under the California Environmental Quality Act (CEQA); and 3) after payment of the

applicable FGC section 711.4 filing fee listed at  
[http://www.dfg.ca.gov/habcon/ceqa/ceqa\\_changes.html](http://www.dfg.ca.gov/habcon/ceqa/ceqa_changes.html).

## **TERM**

This Agreement shall expire five years from the effective date, unless it is terminated or extended before then. All provisions in the Agreement shall remain in force throughout its term. Permittee shall remain responsible for implementing any provisions specified herein to protect fish and wildlife resources after the Agreement expires or is terminated, as FGC section 1605(a)(2) requires.

## **AUTHORITY**

If the person signing the Agreement (signatory) is doing so as a representative of Permittee, the signatory hereby acknowledges that he or she is doing so on Permittee's behalf and represents and warrants that he or she has the authority to legally bind Permittee to the provisions herein.

## **AUTHORIZATION**

This Agreement authorizes only the project described herein. If Permittee begins or completes a project different from the project the Agreement authorizes, Permittee may be subject to civil or criminal prosecution for failing to notify DFG in accordance with FGC section 1602.

**CONCURRENCE**

The undersigned accepts and agrees to comply with all provisions contained herein.

**CALIFORNIA DEPARTMENT OF  
TRANSPORTATION**



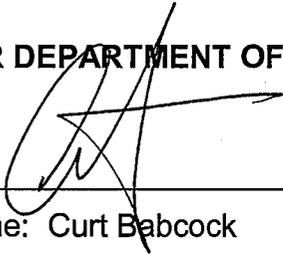
Name: FRANK DEMLING

Title: PROJECT MANAGER

6 JUNE 2012

Date

**FOR DEPARTMENT OF FISH AND GAME**



T. WENCA

for Name: Curt Babcock

Title: Environmental Program Manager

6/8/12

Date

Prepared by: Clare Golec  
Environmental Scientist  
June 5, 2012





U S Army Corps of  
Engineers  
Sacramento District

# Nationwide Permit Summary

33 CFR Part 330; Issuance of Nationwide  
Permits – March 19, 2012

**14. Linear Transportation Projects.** Activities required for the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

This NWP also authorizes temporary structures, fills, and work necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

**Notification:** The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) the loss of waters of the United States exceeds 1/10-acre; or (2) there is a discharge in a special aquatic site, including wetlands. (See general condition 31.) (Sections 10 and 404)

**Note:** Some discharges for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under Section 404(f) of the Clean Water Act (see 33 CFR 323.4).

## A. Regional Conditions

### 1. Regional Conditions for California, excluding the Tahoe Basin

[http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012\\_nwps/2012-NWP-RC-CA.pdf](http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012_nwps/2012-NWP-RC-CA.pdf)

### 2. Regional Conditions for Nevada, including the Tahoe Basin

[http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012\\_nwps/2012-NWP-RC-NV.pdf](http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012_nwps/2012-NWP-RC-NV.pdf)

### 3. Regional Conditions for Utah

[http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012\\_nwps/2012-NWP-RC-UT.pdf](http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012_nwps/2012-NWP-RC-UT.pdf)

### 4. Regional Conditions for Colorado.

[http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012\\_nwps/2012-NWP-RC-CO.pdf](http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012_nwps/2012-NWP-RC-CO.pdf)

## B. Nationwide Permit General Conditions

**Note:** To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer.

Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR §§ 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR § 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

### 1. Navigation.

(a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters,

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the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

- 2. **Aquatic Life Movements.** No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.
- 3. **Spawning Areas.** Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.
- 4. **Migratory Bird Breeding Areas.** Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.
- 5. **Shellfish Beds.** No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.
- 6. **Suitable Material.** No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).
- 7. **Water Supply Intakes.** No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.
- 8. **Adverse Effects From Impoundments.** If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.
- 9. **Management of Water Flows.** To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).
- 10. **Fills Within 100-Year Floodplains.** The activity must comply with applicable FEMA-approved state or local floodplain management requirements.
- 11. **Equipment.** Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.
- 12. **Soil Erosion and Sediment Controls.** Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.
- 13. **Removal of Temporary Fills.** Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.
- 14. **Proper Maintenance.** Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.
- 15. **Single and Complete Project.** The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.
- 16. **Wild and Scenic Rivers.** No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).
- 17. **Tribal Rights.** No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.
- 18. **Endangered Species.**
  - (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.
  - (b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to

demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the NWP activity, or whether additional ESA consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have “no effect” on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWP.

(e) Authorization of an activity by a NWP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from the U.S. FWS or the NMFS, The Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word “harm” in the definition of “take” means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.noaa.gov/fisheries.html> respectively.

19. **Migratory Birds and Bald and Golden Eagles.** The permittee is responsible for obtaining any “take” permits required under the U.S. Fish and Wildlife Service’s regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the U.S. Fish and Wildlife Service to determine if such “take” permits are required for a particular activity.

20. **Historic Properties.**

(a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address section 106 compliance for the NWP activity, or whether additional section 106 consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified

historic properties on which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

(d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

**21. Discovery of Previously Unknown Remains and Artifacts.** If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

**22. Designated Critical Resource Waters.** Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or

ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWP 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 31, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

**23. Mitigation.** The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal, and provides a project-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in minimal adverse effects on the aquatic environment.

(2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

- (3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) – (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).
- (4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.
- (5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan.
- (d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment.
- (e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.
- (f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.
- (g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.
- (h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.
- 24. Safety of Impoundment Structures.** To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.
- 25. Water Quality.** Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.
- 26. Coastal Zone Management.** In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.
- 27. Regional and Case-By-Case Conditions.** The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

**28. Use of Multiple Nationwide Permits.** The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

**29. Transfer of Nationwide Permit Verifications.** If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

“When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.”

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(Transferee)

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(Date)

**30. Compliance Certification.** Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any required compensatory mitigation. The success of any required permittee responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

- (a) A statement that the authorized work was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;
- (b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and
- (c) The signature of the permittee certifying the completion of the work and mitigation.

**31. Pre-Construction Notification.**

(a) **Timing.** Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification

(PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

- (1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or
- (2) 45 calendar days have passed from the district engineer’s receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 20 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is “no effect” on listed species or “no potential to cause effects” on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee’s right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2)..

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

- (1) Name, address and telephone numbers of the prospective permittee;
- (2) Location of the proposed project;

(3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause, including the anticipated amount of loss of water of the United States expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(4) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(5) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse effects are minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

(7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property

may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

(c) Form of Pre-Construction Notification: he standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

(d) Agency Coordination:

(1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

(2) For all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States, for NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of intermittent and ephemeral stream bed, and for all NWP 48 activities that require pre-construction notification, the district engineer will immediately provide (e.g., via email, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where

there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(4) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

### C. District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. For a linear project, this determination will include an evaluation of the individual crossings to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to intermittent or ephemeral streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51 or 52, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in minimal adverse effects. When making minimal effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

2. If the proposed activity requires a PCN and will result in a loss of greater than 1/10- acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining

whether the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

3. If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either: (a) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (c) that the project is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period, with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation or a requirement that the applicant submit a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level. When mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

### D. Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWP's do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWP's do not grant any property rights or exclusive privileges.
4. NWP's do not authorize any injury to the property or rights of others.
5. NWP's do not authorize interference with any existing or proposed Federal project.

#### E. Definitions

**Best management practices (BMPs):** Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

**Compensatory mitigation:** The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

**Currently serviceable:** Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

**Direct effects:** Effects that are caused by the activity and occur at the same time and place.

**Discharge:** The term "discharge" means any discharge of dredged or fill material.

**Enhancement:** The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

**Ephemeral stream:** An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

**Establishment (creation):** The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

**High Tide Line:** The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in

which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

**Historic Property:** Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

**Independent utility:** A test to determine what constitutes a single and complete non-linear project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

**Indirect effects:** Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

**Intermittent stream:** An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

**Loss of waters of the United States:** Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities eligible for exemptions under Section 404(f) of the Clean Water Act are not considered when calculating the loss of waters of the United States.

**Non-tidal wetland:** A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

**Open water:** For purposes of the NWP, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of “open waters” include rivers, streams, lakes, and ponds.

**Ordinary High Water Mark:** An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas (see 33 CFR 328.3(e)).

**Perennial stream:** A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

**Practicable:** Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

**Pre-construction notification:** A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

**Preservation:** The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

**Re-establishment:** The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

**Rehabilitation:** The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

**Restoration:** The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

**Riffle and pool complex:** Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a coarse substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

**Riparian areas:** Riparian areas are lands adjacent to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

**Shellfish seeding:** The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

**Single and complete linear project:** A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term “single and complete project” is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

**Single and complete non-linear project:** For non-linear projects, the term “single and complete project” is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of “independent utility”). Single and complete non-linear projects may not be “piecemealed” to avoid the limits in an NWP authorization.

**Stormwater management:** Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

**Stormwater management facilities:** Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

**Stream bed:** The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

**Stream channelization:** The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.

**Structure:** An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

**Tidal wetland:** A tidal wetland is a wetland (i.e., water of the United States) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line, which is defined at 33 CFR 328.3(d).

**Vegetated shallows:** Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

**Waterbody:** For purposes of the NWP, a waterbody is a jurisdictional water of the United States. If a jurisdictional wetland is adjacent – meaning bordering, contiguous, or neighboring – to a waterbody determined to be a water of the United States under 33 CFR 328.3(a)(1)-(6), that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of “waterbodies” include streams, rivers, lakes, ponds, and wetlands.

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**North Coast Regional Water Quality Control Board**

May 31, 2012

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In the Matter of

**Water Quality Certification**

for the

**California Department of Transportation  
Highway 254 – Storm Damage Repair  
WDID No. 1B12014WNHU**

APPLICANT: California Department of Transportation  
RECEIVING WATER: Intermittent and ephemeral streams  
HYDROLOGIC AREA: Eel River Hydrologic Unit No.111.00  
COUNTY: Humboldt  
FILE NAME: CDOT - HWY 254 Storm Damage Repair Project  
WDID No. 1B12014WNHU

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BY THE EXECUTIVE OFFICER:

1. On March 9, 2012, the North Coast Regional Water Quality Control Board (Regional Water Board) received an application from the California Department of Transportation (Caltrans), requesting Federal Clean Water Act (CWA), section 401, Water Quality Certification for activities related to proposed Highway 254 Storm Damage Repair Project (Project). The proposed project will cause disturbances to waters of the United States (U.S.) and waters of the State associated with intermittent and ephemeral drainages, streams and riparian areas that are located within the Eel River Hydrologic Unit No.111.00 (Weott Hydrologic Sub-Area No.111.32). The Regional Water Board provided public notice of the application pursuant to title 23, California Code of Regulations, section 3858 on April 17, 2011, and posted information describing the project on the Regional Water Board's website. No comments were received.

2. The proposed project is located on Highway 254 at post mile (PM) 11.0 to PM 11.3, in Humboldt County. The purpose of the proposed project is to permanently repair and reconstruct the drainage facilities, the roadway, and stream banks and channels, which were damaged during the 2005/2006 winter storms. Temporary measures were taken following the initial storm damage; however, the proposed project is intended restore the roadway to pre-storm conditions. Caltrans is proposing to install drainage features to minimize the infiltration of water into the roadway prism. This includes installation of deep underdrains upslope of the roadway, reconstruction of three existing drainage systems, roadway excavation and reconstruction, installing rock slope protection (RSP) at culvert outfalls, revegetating disturbed areas, and widening and restriping. The proposed project will result in temporary and permanent impacts to waters of the U.S. and waters of the State.
3. Caltrans has determined that temporary impacts to waters of the State (unnamed tributaries to Eel River) associated with construction would total 0.05 acres (2,266 feet<sup>2</sup>). In addition, Caltrans has determined that the permanent impacts to jurisdictional waters associated with the installation of RSP would total 0.01 acres (583 feet<sup>2</sup>). Caltrans has incorporated approximately 0.1 acres of on-site riparian revegetation actions to off-set impacts to jurisdictional surface water drainage features. In addition, Caltrans will be required to develop a project to repair drainage features and an unstable stream bank, that are adjacent to the proposed project, which are exacerbating erosion and sedimentation to the Eel River.
4. The proposed project activity is anticipated to be conducted in the summer months during low flow conditions; however, work conducted within surface waters will only be conducted between June 15<sup>th</sup> to and October 15<sup>th</sup>. The proposed project will result in approximately 0.35 acres of disturbed soil area. Caltrans will utilize Best Management Practices (BMPs) to provide erosion control and pollution prevention throughout the project area during construction. All graded areas within the project affected by the construction activities will be appropriately stabilized and/or replanted with appropriate native vegetation.
5. The applicant has applied for authorization from the U.S. Army Corps of Engineers to perform the project under their Nationwide Permits No. 14 (linear transportation projects) pursuant to Clean Water Act, section 404. Caltrans has also applied for a California Department of Fish and Game Streambed Alteration Agreement. Caltrans has determined that this project is categorically exempt from California Environmental Quality Act (CEQA) review (Statutory Exemption). In addition, Regional Water Board staff has determined that this project is categorically exempt from CEQA review (Class 1 Categorical Exemption) and anticipates filing a Notice of Exemption.
6. The Eel River watershed is listed on the Clean Water Act section 303(d) list as impaired for sediment and temperature. On December 16, 1999, the U.S. EPA

established sediment and temperature total maximum daily loads (TMDLs) for the South Fork Eel River and tributaries. Roads are a significant source of sediment in the watershed (directly, from surface erosion, and, indirectly, by triggering landslides. In addition, activities that impact stream bed, banks, and floodplains and reduce riparian vegetation are identified as sources contributing to increased stream temperatures. Such projects may involve removal of vegetation and/or channel alteration, and also have potential to increase sediment loads. A focus on measures to reduce sediment discharges to surface waters from roads in the watershed, and measures to avoid, minimize, and mitigate impacts on riparian zones is essential for achieving TMDL, Basin Plan, and CEQA compliance. Accordingly, this Order is consistent with, and implements portions of the Eel River TMDL.

7. Pursuant to Regional Water Board Resolution R1-2004-0087, *Total Maximum Daily Load Implementation Policy Statement for Sediment-Impaired Receiving Waters within the North Coast Region* (Sediment TMDL Implementation Policy), the Executive Officer is directed to “rely on the use of all available authorities, including existing regulatory standards, and permitting and enforcement tools to more effectively and efficaciously pursue compliance with sediment-related standards by all dischargers of sediment waste.”
8. Pursuant to Regional Water Board Resolution R1-2012-0013, *Implementation of the Water Quality Objective for Temperature in the North Coast Region* (Temperature Implementation Policy), Regional Water Board staff are directed to address factors that contribute to elevated water temperatures when issuing 401 certifications or WDRs (permits) for individual projects. Any permit should be consistent with the assumptions and requirements of temperature shade load allocations in areas subject to existing temperature TMDLs, including EPA- established temperature TMDLs, as appropriate. If applicable, any permit or order should implement similar shade controls in areas listed as impaired for temperature but lacking a TMDL and region-wide as appropriate and necessary to prevent future impairments and to comply with the intrastate temperature objective.
9. The federal antidegradation policy requires that state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California’s antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board’s Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. This Order is consistent with applicable federal and State antidegradation policies, as it does not authorize the discharge of increased concentrations of pollutants or increased volumes of treated wastewater, and does not otherwise authorize degradation of the waters affected by this project.

10. To ensure compliance with Water Quality Objectives within the Basin Plan, adequate wetland and riparian protection and stringent requirements to avoid, minimize, and mitigate the sediment and temperature impacts associated with the proposed project will be incorporated as enforceable conditions in this Water Quality Certification. In addition, Caltrans will be required to conduct surface water monitoring, sampling, and analysis in accordance with the conditions of the Water Quality Certification. Additionally, storm water runoff monitoring, sampling, and analysis will be conducted as required by the State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) Permit for Storm Water Discharges from the State of California, Department of Transportation (Caltrans) Properties, Facilities and Activities Order No. 99 – 06 - DWQ. The surface water data collected will be utilized to assess the adequacy of BMPs during construction as well as site specific mitigation measures proposed to minimize impacts to the environment, including sediment and temperature impacts.
11. This discharge is also regulated under State Water Resources Control Board Order No. 2003-0017-DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality Certification," which requires compliance with all conditions of this certification.

Receiving Waters: Wetlands and intermittent, ephemeral and perennial streams  
Eel River Hydrologic Unit No.111.00  
Weott Hydrologic Sub-Area No. 111.31

Filled and/or

Excavated Areas: Permanent – streams (Waters of U.S.): 0.01 acre

Temporary – streams (Waters of U.S.): 0.05 acre

Total Linear Impacts: Permanent – streams (Waters of U.S.): 596 linear feet

Temporary – streams (Waters of U.S.): 264 linear feet

Dredge Volume : None

Fill Volume : 735 cubic yards

Latitude/Longitude: 40.2830 N / 123.8589 W

Accordingly, based on its independent review of the record, the Regional Water Board certifies that the Caltrans – Highway 254 Storm Damage Repair Project (WDID No. 11B12014WNHU), as described in the application will comply with sections 301, 302, 303, 306 and 307 of the Clean Water Act, and with applicable provisions of state law, provided that the Caltrans complies with the following terms and conditions:

**All conditions of this order apply to Caltrans (and all its employees) and all contractors (and their employees), sub-contractors (and their employees), and any other entity or agency that performs activities or work on the project (including the off-site mitigation lands) as related to this Water Quality Certification.**

1. This certification action is subject to modification or revocation upon administrative or judicial review; including review and amendment pursuant to Water Code section 13330 and title 23, California Code of Regulations, section 3867.
2. This certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to title 23, California Code of Regulations, section 3855, subdivision (b) and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.
3. The validity this certification is conditioned upon total payment of any fee required under title 23, California Code of Regulations, section 3833, and owed by the applicant.
4. All conditions required by this Order shall be included in the Plans and Specifications prepared by Caltrans for the Contractor. In addition, Caltrans shall require compliance with all conditions included in this Order in the bid contract for this project.
5. Caltrans shall provide a copy of this order and State Water Resources Control Board (SWRCB) Order No. 2003-0017-DWQ (web link referenced below) to the contractor and all subcontractors conducting the work, and require that copies remain in their possession at the work site. Caltrans shall be responsible for work conducted by its contractor or subcontractors.
6. The Regional Water Board shall be notified in writing each year at least five working days (working days are Monday – Friday) prior to the commencement of ground disturbing activities, water diversion activities or construction activities with details regarding the construction schedule, in order to allow Regional Water Board staff to be present on-site during installation and removal activities, and to answer any public inquiries that may arise regarding the project. Caltrans shall provide Regional Water Board staff access to the project site to document compliance with this order.

7. The Resident Engineer (or appropriately authorized agent) shall hold on-site water quality permit compliance meetings (similar to tailgate safety meetings) to discuss permit compliance, including instructions on how to avoid violations and procedures for reporting violations. The meetings shall be held at least every other week, before forecasted storm events, and when a new contractor or subcontractor arrives to begin work at the site. The contractors, subcontractors and their employees, as well as any inspectors or monitors assigned to the project, shall be present at the meetings. Caltrans shall maintain dated sign-in sheets for attendees at these meetings, and shall make them available to the Regional Water Board on request.
8. All activities and best management practices (BMPs) shall be implemented according to the submitted application and the conditions in this certification. BMPs for erosion, sediment, turbidity and pollutant control shall be implemented and in place at commencement of, during, and after any ground clearing activities, construction activities, or any other project activities that could result in erosion, sediment, or other pollutant discharges to waters of the State. The BMPs shall be implemented in accordance with the Caltrans Construction Site Best Management Practice Manual (CCSBMPM) and all contractors and subcontractors shall comply with the CCSBMPM. In addition, BMPs for erosion and sediment control shall be utilized year round, regardless of season or time of year. Caltrans shall stage erosion and sediment control materials at the work site. All BMPs shall be installed properly and in accordance with the manufacturer's specifications. If the project Resident Engineer elects to install alternative BMPs for use on the project, Caltrans shall submit a proposal to Regional Water Board staff for review and concurrence.
9. Caltrans shall prioritize the use of wildlife-friendly biodegradable (not photo-degradable) erosion control products wherever feasible. Caltrans shall not use or allow the use of erosion control products that contain synthetic netting for permanent erosion control (i.e. erosion control materials to be left in place for two years or after the completion date of the project). If Caltrans finds that erosion control netting or products have entrapped or harmed wildlife, personnel shall remove the netting or product and replace it with wildlife-friendly biodegradable products. Caltrans shall not use or allow the use of erosion control products that contain synthetic materials within waters of the United States or waters of the State at any time. Caltrans shall request approval from the Regional Water Board if an exception from this requirement is needed for a specific location.
10. Herbicides and pesticides shall not be used within the project. If Caltrans has a compelling case as to why herbicides and pesticides should be used, they may submit a request along with a BMP plan to the Executive Officer of the Regional Water Board for review, consideration, and concurrence.

11. Work in flowing or standing surface waters, unless otherwise proposed in the project description and approved by the Regional Water Board, is prohibited. If construction dewatering of groundwater is found to be necessary, Caltrans shall use a method of water disposal other than disposal to surface waters (such as land disposal) or Caltrans shall apply for coverage under the Low Threat Discharge Permit or an individual National Pollutant Discharge Elimination System (NPDES) Permit and receive notification of coverage to discharge to surface waters, prior to the discharge.
12. Caltrans is prohibited from discharging waste to waters of the State, unless explicitly authorized by this Order. For example, no debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or concrete washings, welding slag, oil or petroleum products, or other organic or earthen material from any construction or associated activity of whatever nature, other than that authorized by this Order, shall be allowed to enter into waters of the State. In addition, none of the materials listed above shall be placed within 150 linear feet of waters of the State or where the materials may be washed by rainfall into waters of the State.
13. Caltrans shall submit, subject to review and concurrence by the Regional Water Board staff, a dewatering and/or diversion plan that appropriately describe the dewatered or diverted areas and how those areas will be handled during construction. The diversion/dewatering plans shall be submitted no later than 30 days prior to conducting the proposed activity. Information submitted shall include the area or work to be diverted or dewatered and method of the proposed activity. All diversion or dewatering activities shall be designed to minimize the impact to waters of the State and maintain natural flows upstream and downstream. All dewatering or diversion structures shall be installed in a manner that does not cause sedimentation, siltation or erosion upstream or downstream. All dewatering or diversion structures shall be removed immediately upon completion of project activities. The in-channel work will only be conducted between June 15 and October 15. This Order does not authorize Caltrans to draft surface waters.
14. Fueling, lubrication, maintenance, storage and staging of vehicles and equipment shall be outside of waters of the U.S. and the State. Fueling, lubrication, maintenance, storage and staging of vehicles and equipment shall not result in a discharge or a threatened discharge to any waters of the State or the U.S. At no time shall Caltrans use any vehicle or equipment which leaks any substance that may impact water quality.
15. Caltrans shall implement appropriate BMPs to prevent the discharge of equipment fluids to the stream channel. The minimum requirements will include: storing hazardous materials at least 150 linear feet outside of the stream banks; checking equipment for leaks and preventing the use of equipment with leaks; pressure washing or steam cleaning equipment to remove fluid residue on any of its surfaces

- prior to its entering any stream channel in a manner that does not result in a discharge to waters of the State.
16. If, at any time, an unauthorized discharge to surface water (including wetlands, rivers or streams) occurs, or any water quality problem arises, the associated project activities shall cease immediately until adequate BMPs are implemented. The Regional Water Board shall be notified promptly and in no case more than 24 hours after the unauthorized discharge or water quality problem arises.
  17. Caltrans and their contractor are not authorized to discharge wastewater (e.g., water that has contacted uncured concrete or cement, or asphalt) to surface waters, ground waters, or land. Wastewater may only be disposed of to a sanitary waste water collection system/facility (with authorization from the facility's owner or operator) or a properly-licensed disposal or reuse facility. If Caltrans or their contractor proposes an alternate disposal method, Caltrans or their contractor shall request authorization from the Regional Water Board. Plans to reuse or recycle wastewater require written approval from Regional Water Board staff.
  18. Caltrans shall provide analysis and verification that placing non-hazardous waste or inert materials (which may include discarded product or recycled materials) will not result in degradation of water quality, human health, or the environment. All project-generated waste shall be handled, transported, and disposed in strict compliance with all applicable State and Federal laws and regulations. When operations are complete, any excess material or debris shall be removed from the work area and disposed of properly and in accordance with the Special Provisions for the project and/or Standard Specification 7-1.13, Disposal of Material Outside the Highway Right of Way. Within 30 days of disposing of materials off-site Caltrans shall submit to the Regional Water Board the satisfactory evidence provided to the Caltrans Engineer by the Contractor referenced in Standard Specification 7-1.13. In accordance with State and Federal laws and regulations, Caltrans is liable and responsible for the proper disposal of waste generated by their project.
  19. All imported fill material shall be clean and free of pollutants. All fill material shall be imported from a source that has the appropriate environmental clearances and permits. The reuse of low-level contaminated solids as fill on-site shall be performed in accordance with all State and Federal policies and established guidelines and must be submitted to the Regional Water Board for review and concurrence.
  20. Only clean washed spawning gravel (0.25" – 6") with a cleanliness value of at least 85, using the Cleanness Value Test Method for California Test No. 227 will be placed in the streams. Gravel bag fabric shall be nonwoven polypropylene geotextile (or comparable polymer) and shall conform to the following requirements:

- Mass per unit area, grams per square meter, min ASTM Designation: D 5261 – 270
  - Grab tensile strength (25-mm grip), kilonewtons, min. ASTM Designation: D4632\* 0.89
  - Ultraviolet stability, percent tensile strength retained after 500 hours, ASTM Designation: D4355, xenon arc lamp method 70 or appropriate test method for specific polymer
  - Gravel bags shall be between 600 mm and 800 mm in length, and between 400 mm and 500 mm in width.
  - Yarn used in construction of the gravel bags shall be as recommended by the manufacturer or bag supplier and shall be of a contrasting color. Gravel shall be between 0.5" – 4" in diameter, and shall be clean and free from clay balls, organic matter, and other deleterious materials. The opening of gravel-filled bags shall be secured to prevent gravel from escaping. Gravel-filled bags shall be between 13 kg and 22 kg in mass.
  - Caltrans shall request approval from the Regional Water Board if an exception from this requirement is needed for a specific location.
21. In order to demonstrate compliance with receiving water limitations and water quality objectives surface water monitoring shall be conducted. When conducting surface water monitoring Caltrans shall establish discharge, upstream (background) and downstream monitoring locations to demonstrate compliance with applicable water quality objectives. The downstream location shall be no more than 100 feet from the discharge location.
- A. Surface water monitoring shall be conducted whenever a project activity is conducted within waters of the State (e.g. including but not limited to the installation, use or removal of stream diversions, pile installations, and cofferdams). Measurements and observations shall be collected from each sampling location four times daily.
  - B. Surface water monitoring shall be conducted immediately when any project activity has mobilized sediment or other pollutants resulting in a discharge and/or has the potential to alter background conditions within waters of the State (including but not limited to storm water runoff, concrete discharges, leaks, and spills.). The continuing frequency is contingent upon results of field measurements and applicable water quality objectives.

Surface water monitoring field measurements shall be taken for pH and turbidity. In addition, visual observations of each location shall be documented daily for each established monitoring location and monitoring event and include the estimate of

flow, appearance of the discharge including color, floating or suspended matter or debris, appearance of the receiving water at the point of discharge (occurrence of erosion and scouring, turbidity, solids deposition, unusual aquatic growth, etc), and observations about the receiving water, such as the presence of aquatic life. If a project activity has reached a steady state and is stable then Caltrans may request a temporary reprieve from this condition from the Regional Water Board until an activity or discharge triggers the monitoring again.

22. Whenever, as a result of project activities (in-stream work or a discharge to receiving waters), downstream measurements exceed any water quality objective 100 feet downstream of the source(s) all necessary steps shall be taken to install, repair, and/or modify BMPs to control the source(s). The frequency of surface water monitoring shall increase to hourly and shall continue until measurements demonstrate compliance with water quality objectives for each parameter listed below and measured levels are no longer increasing as a result of project activities. In addition, the overall distance from the source(s) to the downstream extent of the exceedence of water quality objectives shall be measured.

Monitoring results shall be reported to appropriate Regional Water Board staff person by telephone within 24 hours of taking any measurements that exceed the limits detailed below (only report turbidity if it is higher than 20 NTU).

pH	<6.5 or >8.5 (any changes >0.5 units)
turbidity	20% above natural background

Monitoring results and upstream and downstream pictures within the working and/or disturbed area and discharge location shall be taken and submitted to the appropriate Regional Water Board staff within 24 hours of the incident. All other monitoring data documenting compliance with water quality objectives shall be reported on a monthly basis and is due to the Regional Water Board by the 15<sup>th</sup> of the following month.

23. Post Storm Event Reports:

- Once the project has begun ground-disturbing activities, and subsequent to a qualifying rain event that exceeds 0.5-inches of precipitation, Caltrans shall inspect the project within 24 hours and take photos of all discharge locations, and disturbed areas, including all excess materials disposal areas, in order to demonstrate that erosion control and revegetation measures are present and have been installed appropriately and are functioning effectively. A brief report containing these photos, corrective actions (if necessary), and any surface water monitoring results collected pursuant to this Order or the Construction General Permit (SWRCB Order 2009-009 DWQ) shall be submitted to the Regional Water Board within 10 days after the end of the qualifying rain event.

Inspections are required daily during extended rain events. Once the project site is stable, in a steady state (channel- ground- or vegetation-disturbing activities have ceased), and has demonstrated sufficient and effective erosion and sediment control, Caltrans may request a reprieve from this condition from the Regional Water Board. At least one post-construction inspection is required to demonstrate sufficient and effective erosion and sediment control and compliance with the Basin Plan.

- Rain events are periods of precipitation that that are separated by more than 48-hours of dry weather. Rainfall amounts may be taken from on-site rain gauges, from the nearest California Data Exchange Center station (<http://cdec.water.ca.gov>), or by a custom method or station approved by Regional Water Board staff.
24. Caltrans shall perform on-site revegetation actions in accordance with the application and associated revegetation plan. Revegetation planting shall occur in the first full planting season (November to April) subsequent to the year construction is complete and erosion control is established. The planting success criteria shall be 80 percent survival of the planted trees and shrubs, greater than 50 percent absolute cover of wetland plugs, and less than 5 percent relative cover of invasive species. Revegetation monitoring reports are due on December 31, annually for up to five years or until success is achieved.
  25. Caltrans shall develop a project to address the excessive erosion downstream of PM 4.49, PM 4.55, PM 11.13 and PM 11.18. In addition, the project shall include a proposal to bioengineer the eroding bank adjacent to the project, between the Caltrans Right-of-Way and the Eel River. The plan shall include authorization agreements with California State Parks and CDFG. The plan shall be submitted to the Executive Officer of the Regional Water Board for review, consideration, and concurrence no later than December 31, 2012. The projects shall be implemented no later than October 15<sup>th</sup>, 2013.
  26. In the event of any violation or threatened violation of the conditions of this Order, the violation or threatened violation shall be subject to any remedies, penalties, process or sanctions as provided for under applicable state or federal law. For the purposes of section 401(d) of the Clean Water Act, the applicability of any state law authorizing remedies, penalties, process or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this Order. In response to a suspected violation of any condition of this certification, the State Water Board may require the holder of any federal permit or license subject to this Order to furnish, under penalty of perjury, any technical or monitoring reports the State Water Board deems appropriate, provided that the burden, including costs, of the reports shall bear a reasonable relationship to the need for the reports and the

- benefits to be obtained from the reports. In response to any violation of the conditions of this Order, the Regional Water Board may add to or modify the conditions of this Order as appropriate to ensure compliance.
27. The Regional Water Board may add to or modify the conditions of this Order, as appropriate, to implement any new or revised water quality standards and implementation plans adopted or approved pursuant to the Porter-Cologne Water Quality Control Act or section 303 of the Clean Water Act.
  28. This Order is not transferable. In the event of any change in control of ownership of land presently owned or controlled by the Applicant, the Applicant shall notify the successor-in-interest of the existence of this Order by letter and shall forward a copy of the letter to the Regional Water Board. The successor-in-interest must send to the Regional Water Board Executive Officer a written request for transfer of this Order to discharge dredged or fill material under this Order. The request must contain the following:
    - a. requesting entity's full legal name
    - b. the state of incorporation, if a corporation
    - c. address and phone number of contact person
    - d. description of any changes to the project or confirmation that the successor-in-interest intends to implement the project as described in this Order.
  29. Except as may be modified by any preceding conditions, all certification actions are contingent on: a) the discharge being limited, and all proposed revegetation, avoidance, minimization, and mitigation measures being completed, in strict compliance with Caltrans' project description and CEQA documentation, as approved herein, b) Caltrans shall construct the project in accordance with the project described in the application and the findings above, and c) compliance with all applicable water quality requirements and water quality control plans including the requirements of the Water Quality Control Plan for the North Coast Region (Basin Plan), and amendments thereto. Any change in the design or implementation of the project that would have a significant or material effect on the findings, conclusions, or conditions of this Order must be submitted to the Executive Officer of the Regional Water Board for prior review, consideration, and written concurrence. If the Regional Water Board is not notified of a significant alteration to the project, it will be considered a violation of this Order, and Caltrans may be subject to Regional Water Board enforcement actions.
  30. The authorization of this certification for any dredge and fill activities expires on May 31, 2017. Conditions and monitoring requirements outlined in this Order are not

subject to the expiration date outlined above, and remain in full effect and are enforceable.

31. Please contact our staff Environmental Specialist / Caltrans Liaison Jeremiah Puget of at (707) 576-2835 or [jpuget@waterboards.ca.gov](mailto:jpuget@waterboards.ca.gov) if you have any questions.



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Matthias St. John  
Executive Officer

120531\_JJP\_CDOT\_Hwy254\_StormDamageRepair\_401Cert

Web link: State Water Resources Control Board Order No. 2003-0017 -DWQ, General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality Certification can be found at:  
[http://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2003/wqo/wqo2003-0017.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0017.pdf)

Original to: Ms. Carol Wilson, Caltrans, District 1, P.O. Box 3700,  
Eureka, CA 95502-3700

Copies to: Mr. Dana York, Caltrans, District 1, P.O. Box 3700,  
Eureka, CA 95502-3700

Electronic  
Copies to: U.S. Army Corps of Engineers, Regulatory Functions - San  
Francisco District

# Storm Damage Repair and Drainage Work above the South Fork Eel River

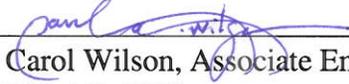
## Biological Assessment for Section 7 Consultation with U.S. Fish and Wildlife Service

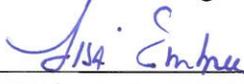
01-HUM-254 PM 11.0/11.1

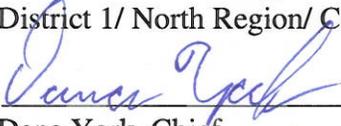
EA 47502

October 2011

STATE OF CALIFORNIA  
Department of Transportation

Prepared By:  Date: 10.26.11  
Carol Wilson, Associate Environmental Planner (Natural Sciences)  
707-441-3983  
Environmental Management Branch E2  
District 1/ North Region/ California Department of Transportation

Reviewed By:  Date: 10/26/11  
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707-441-5722  
Environmental Management Branch E2  
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Approved By:  Date: 10/26/2011  
Dana York, Chief  
707-445-6416  
Environmental Management Branch E2  
District 1/ North Region/ California Department of Transportation



**DEPARTMENT OF TRANSPORTATION**

DISTRICT 1, P.O. BOX 3700  
EUREKA, CA 95502-3700  
PHONE (707) 445-6445  
FAX (707) 445-6314  
TTY 711



*Flex your power!  
Be energy efficient!*

September 20, 2011

Ms. Michelle Gardner  
District Superintendent, North Coast Redwoods District  
California State Parks  
3431 Fort Avenue  
Eureka, CA 95503

Dear Ms. Gardner:

Re: Request for Section 4(f) concurrence on a determination of *De Minimis* impact for the repair of storm damage on Route 254 (Project 01-47502)

The California Department of Transportation (Caltrans) is proposing to restore a portion of State Route (SR) 254 damaged by storm events in the 2005/2006 winter. The damaged area extends from post mile (PM) 11.0 to PM 11.1 in Humboldt County near Miranda, about 0.2 mile north of Bridge Creek and 1.5 miles south of Myers Flat. The purpose of the project is to reconstruct SR 254 to its pre-damage condition and install drainage features to minimize the infiltration of water into the roadway prism. This includes installing deep underdrains upslope of the roadway, reconstructing three drainage systems, as well as excavating, reconstructing, widening and restriping the roadway. Caltrans is requesting concurrence that the project will not have a significant impact, under Section 4(f) de minimis, to park resources.

The Storm Damage Project (proposed project) on SR 254 would use federal funds administered by the Federal Highway Administration (FHWA). As a result, compliance with the National Environmental Policy Act (NEPA) is required. Through delegation of authority by the FHWA Delegation Pilot Program authorized under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), the Department is the NEPA lead agency for preparation of the environmental document for the proposed project. In accordance with NEPA, Caltrans is preparing a Categorical Exclusion (CE) which documents our efforts to avoid and minimize all potential environmental effects resulting from the proposed project. Caltrans is also the California Environmental Quality Act (CEQA) lead agency for the proposed project and is preparing a Categorical Exemption (CE).

Under 49 USC 303(d)1, Caltrans has made a preliminary determination that the proposed project would result in a *de minimis* (no significant) impact to Humboldt Redwoods State Park for purposes of Section 4(f) of the U.S. Department of Transportation Act of 1966.

*De minimis* impacts are defined as those that do not adversely affect the activities, features, and attributes of the 4(f) resource. The official with jurisdiction over the property must provide written concurrence that the project will not adversely affect the activities, features, and attributes that qualify the property for protection under 4(f).

The public must also be afforded the opportunity to review and comment on the effects of the project on the park resources. A public notice was placed in the Eureka Times-Standard on May 27, 2011 through June 27, 2011, for public review and comment on the proposed finding. On June 6, 2011, the U.S. Army Corps of Engineers (USACE) notified Caltrans in writing that this project should be evaluated by Caltrans and reviewed by the USACE for potential impacts to waters of the U.S. If impacts to jurisdictional waters are proposed all appropriate permits will be obtained as per Section 404 of the Clean Water Act (CWA) (33 U.S.C. Section 1344).

#### Description of 4(f) Resource

The project site is entirely bounded by Humboldt Redwoods State Park. Although the work is predominately within Caltrans right-of-way, at the culvert outlet at PM 22.09, Caltrans must obtain both a Right of Entry permit for temporary occupancy for repair construction and a transfer of jurisdiction for future maintenance purposes. Additionally, Caltrans has coordinated with State Parks to evaluate potential impacts to trees within the Caltrans right-of-way and within Humboldt Redwoods State Park. In coordination with State Parks, Caltrans has developed and incorporated avoidance and minimizations to protect the trees that may be impacted. A description of these measures is described in the attached detailed project description under the section titled *Redwood Trees and Roots*.

A brief project description is given below. For a more detailed project description, please refer to the attachment.

#### Project Description

At PM 11.03 the cross culvert will be replaced. The headwall will be protected in place to prevent disturbance to a 36-inch diameter at breast height (dbh) redwood tree that is adjacent.

At PM 11.05 the drainage system will be replaced. Due to the depth and width of excavation, the inlet location will be moved to prevent the removal of two 19-inch dbh redwood trees that are adjacent to it.

At PM 11.09 the drainage system will be replaced. The concrete inlet will be replaced with a deeper concrete pipe inlet at the same location, but with a smaller footprint. Replacing the inlet at the same location will have the least impact to adjacent trees, particularly redwoods. One 28-inch dbh Douglas-fir tree within the Caltrans right-of-way is growing adjacent to the inlet and will need to be removed. The tree is leaning and its roots appear to use the inlet as support; removing the inlet would likely create instability in the tree. A second nearby 24-inch dbh Douglas-fir tree may also need to be removed, depending on the extent of impacts to its roots. Both Douglas-fir trees are within the Caltrans right-of-way. However, Caltrans has consulted with U.S. Fish and Wildlife Service (USFWS) for marbled murrelet and northern spotted owl and coordinated with State Parks to evaluate the potential impacts of tree removal. The conclusion of Caltrans' determination and informal consultation with USFWS for the marbled murrelet and northern spotted owl are in the "Potential Effects to Biological Resources, and Avoidance and Minimization Measures," in the Biological Report Attachment.

From 11.01 to 11.08 three underdrains will be installed to improve drainage to stabilize the roadway. Three separate systems are proposed, in order to avoid areas where roots of old-growth redwoods potentially exist. Proposed placement of the underdrains varies; they are designed to lie outside of the structural root zone of large redwood trees adjacent to the highway (See the section *Redwood Trees and Roots* in the attached detailed description).

Permanent erosion control will be placed on all slopes that are disturbed during construction. All slopes will be re-vegetated with native plants. The work should result in protection of Park resources, and is considered a Section 4(f) *de minimis* impact.

4(f) De minimis determination

The *de minimis* impact finding is based on the degree or level of impact, including any avoidance, minimization, and mitigation or enhancement measures that are included in the project to address the Section 4(f) use. *De minimis* impact findings must be expressly conditioned upon the implementation of any measures that were relied upon to reduce the impact to a *de minimis* level.

Based on protection measures, the project will have no adverse effect on the activities, features, and attributes of Humboldt Redwoods State Park. Therefore, Caltrans considers the requirements of Section 4(f) *de minimis* findings to be satisfied.

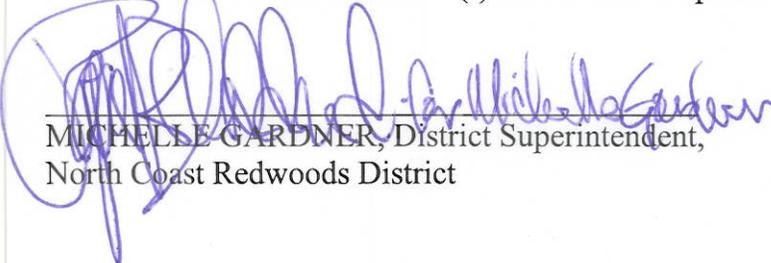
Caltrans has greatly appreciated the cooperation of State Parks in the planning and environmental evaluation of this project and looks forward to continued consultation and coordination. State Parks' agreement with the above conclusions about the provisions of Section 4(f) does not in any way remove Caltrans' responsibilities to assess potential effects on cultural or natural resources, such as water quality, wildlife habitat, and redwood trees on State lands pursuant to NEPA, the Endangered Species Act, the Clean Water Act, the Wild and Scenic Rivers Act, and other applicable laws and executive orders.

Please indicate State Parks' concurrence with the findings described above by signing below and returning this letter to: Frank Demling, Project Manager, California Department of Transportation District 1, P.O. Box 3700, Eureka, CA 95502-3700.

  
\_\_\_\_\_  
CHARLES C. FIELDER  
District 1 Director

9/20/2011  
\_\_\_\_\_  
Date

Concurrence with the Section 4(f) *De Minimis* Impact Finding

  
\_\_\_\_\_  
MICHELLE GARDNER, District Superintendent,  
North Coast Redwoods District

9/22/2011  
\_\_\_\_\_  
Date

Ms. Michelle Gardner  
September 20, 2011  
Page 4

bcc: Dana York  
Denise Walker-Brown  
Carol Wilson  
Frank Demling  
file

## **Biological Report Attachment**

### **Repair Storm Damage Project on State Route 254 PERMANENT RESTORATION STORM DAMAGE PROJECT Humboldt County Route 254-PM 11.0 through 11.10 (EA: 01-47502)**

#### **Repair Storm Damage Project**

Caltrans, in cooperation with the Federal Highway Administration (FHWA), proposes to repair and permanently restore storm damage at one location, from PM 11.0 to PM 11.1, along State Route (SR) 254 in Humboldt County, at approximately 0.2 mile north of Bridge Creek, and 1.5 miles south of Myers Flat. The purpose of the project is to reconstruct SR 254 to its pre-damage condition and install drainage features to minimize the infiltration of water into the roadway prism.

#### **State Parks Coordination and Right-of-Way Clearance**

The project locations are entirely bounded by Humboldt Redwoods State Park. With regard to right-of-way it is anticipated that a Right of Entry at PM 11.09 is all that will be necessary to perform the work. No work will begin until written concurrence is received from State Parks.

#### **Project Description and Construction Scenario**

##### Drainage Systems

Drainage System (DS) 1 will replace the cross culvert at PM 11.03. The existing headwall will be protected in place to prevent disturbance to a 36-inch in diameter at breast height (dbh) redwood tree adjacent to the headwall. The 24-inch by 48.2 foot (ft) culvert will be replaced with a similarly sized culvert that will outlet at the same location. Rock slope protection (RSP) will be installed at the outfall of the culvert.

DS 2 will replace the drainage system at PM 11.05. The existing 18-inch by 86-ft culvert will be abandoned, and portions of the inlet and outlet will be removed. A new 36-inch by 16-ft deep concrete pipe inlet will be installed approximately 8 feet downslope of the existing inlet. Due to the depth and width of excavation, the inlet location will be moved to prevent the removal of two 19-inch dbh redwood trees adjacent to the existing inlet. A new 24-inch by 77.9-ft culvert will be installed to transport both surface and subsurface flows under the roadway. Additionally, a 24-inch by 6-ft downdrain will be installed on the side slope, to maintain the existing flow path. This new system will result in the daylighting of 2 feet of waters of the State. RSP will be installed at the outfall of the system.

DS 3 will replace the drainage system at PM 11.09. The concrete inlet will be replaced with a deeper concrete pipe inlet at the same location, but with a smaller footprint. The 24-inch by 106-ft corrugated steel pipe culvert will be removed and replaced with a same-sized culvert, to transport both surface and subsurface flows under the roadway. It will outlet at the same location as the existing system. RSP will be installed at the outfall of the system. Up to two trees, entirely in Caltrans' right-of-way, may be removed with this replacement. One is a 28-inch dbh Douglas-fir tree growing adjacent to the inlet. The tree is leaning and its roots appear to use the existing concrete inlet as support. Removing the existing concrete inlet will destabilize the tree, creating a

potential safety hazard. A second nearby 24-inch dbh Douglas-fir may also need to be removed, depending on the extent of impacts to its roots. Keeping the drainage system in this location minimizes the overall impact to trees, as there are numerous large trees in adjacent areas; furthermore, this location is at the lowest point topographically, making it the optimum point to transport drainage flow from the road.

DS 5, 6 and 7 (DS 4 was removed from the project) are underdrain systems located between PM 11.01 to PM 11.08. Instead of one continuous underdrain system, three separate systems are proposed, in order to avoid areas where roots of old-growth redwoods potentially exist. The new systems consist of 8-inch perforated polyethylene plastic pipe in lengths varying from 62 ft to 200 ft. They will be installed 20 ft deep, upslope or within the roadway, paralleling the highway, varying from 10 to 20 ft right (upslope) of centerline. Proposed placement of the underdrains varies, because they are designed to lie outside of the structural root zone of large redwood trees adjacent to the highway (see *Redwood Trees and Roots* on page 8 below). The excavation for the perforated pipe will be backfilled with permeable material (sand, gravel, or crushed stone). Existing underdrains will either be abandoned or removed during excavation for the new underdrains. Only those underdrains that are encountered during excavation for the new underdrains will be removed. For each of the underdrain systems, vertical polyethylene pipe risers (8-inch by 21.7 ft) will be installed to act as clean-out mechanisms for future maintenance. Additionally, for each of the three underdrain systems, a cross drain (8 inch diameter non-perforated polyethylene plastic pipe) will be installed under the road, perpendicular to the highway, and will daylight to existing vegetated side slopes, either within existing channels or onto RSP.

DS 8 is located at PM 11.09, downslope (river-side) of the road. A roadside ditch collects roadside runoff, directing it into the overside drain. Because the road grade is being raised and the roadway widened to meet minimum design standards, both the roadside ditch and overside drain must be adjusted. All adjustments made to the existing system will be made near the inlet. The existing steel flared end section and 7.4 ft of a 12 inch diameter corrugated steel pipe (measured from the inlet end) will be excavated and removed. A new 12-inch by 7.7 ft corrugated steel pipe and 12-inch steel flared end section will then be installed along a new alignment. The total shift in the alignment from the existing inlet to the proposed inlet is 4 feet.

### Improvements to Roadway and Adjacent Areas

Years of movement created by water infiltration and saturation have caused the profile of the highway to move vertically. In order to correct this, the profile of the road will be adjusted slightly. The deepest excavation (at "D1" 13+87) will be approximately 1 foot, while the deepest fill (at 14+87) will be approximately 1 foot. The remainder of the profile matches existing conditions. Adjustments in the profile will require two roadside ditches to be adjusted. The ditches are located upslope and downslope of the road, from "D1" 15+00 to "D1" 16+00. The upslope ditch will be raised vertically from 0 ft to 1 ft and moved out horizontally 0 ft to 1 ft. The downslope ditch will be raised vertically 0 ft to 1 ft and out horizontally 0 ft to 3 ft.

Finished pavement widths will adhere to minimum Caltrans standards. The northbound lane (towards Myers Flat) will maintain existing widths (12 ft lane with 2-3 ft shoulders) while the southbound lane (towards Miranda) will be widened from 11 ft lane and 1 ft shoulder to minimum standards (12 ft lane with 2 ft shoulder).

### Equipment, Access and Staging

Equipment such as a grader, bulldozer, loader, haul trucks, dump trucks, concrete trucks, paver, roller, asphalt grinder, concrete saw, and motorized hand compactor will be used during construction. A backhoe with bucket, auger, and hammer attachments will also be used.

Most construction activities will occur on or from the roadway. Construction of drainage systems will require temporary access down the side slopes for installation of culverts, downdrains, RSP, or concrete pipe inlets. Upon completion of the drainage systems, all access points will be re-graded to pre-existing conditions.

Equipment and materials for the project will be stored at a pull-out east of the project located at PM 10.88, just west of Bridge Creek.

### Stockpile Summary

As much as 600 CY of roadway excavation could be temporarily stored during construction at the pull-out located at PM 10.88. Construction Best Management Practices (BMPs) will be used at the temporary stockpile. All excavated material will be moved to an appropriate staging area or disposal site such that it cannot be washed into streams or rivers. If rain occurs, erosion control will be set in place during construction to avoid any runoff to the South Fork Eel River.

### Schedule of Construction Activities

Construction of the project is estimated at 40 working days. Due to sensitive resources in the area, construction will be limited to a work window (see below, *Avoidance and Minimization Measures*). With this narrow window, construction may need to be completed over two construction seasons, or night work may be required.

### **State Park Resources, Environmental Permits and Endangered Species Coordination**

Impacts to State Park access will be temporary due to road closure of SR 254 for 5 days and one lane traffic control during working hours throughout the duration of the project. Due to the seasonal wildlife work windows, project construction will not begin until August 21. This timing will reduce the impacts to Park visitors. A detour route around the construction area via Highway 101 is available for vehicles and bicycles. Traffic control will be handled with temporary road closures and one-way traffic control.

Roadway excavation is discussed in the following Existing Biological Conditions and Biological Studies.

### **Existing Biological Conditions and Studies**

The project area is located adjacent to SR-254 in Humboldt County, California, within the Myers Flat U.S. Geological Survey 7.5-minute quadrangle (quad). The project site lies within the South Fork Eel River watershed. At this location, SR-254 parallels the South Fork Eel River, approximately 100-200 ft below. The landscape consists of steep slopes with old-growth redwood and Douglas-fir forest. The project site is surrounded by California State Parks (State Parks).

The pre-field investigation consisted of 9-quad searches (centered on the Myers Flat quad) of the California Natural Diversity Database (CNDDDB) and the California Native Plant Society's (CNPS's) online *Inventory of Rare and Endangered Plants* (California Native Plant Society 2007). A search of the Myers Flat quad for federally listed species was conducted through the U.S. Fish and Wildlife (USFWS) Species List portal (USFWS 2011). Field investigations were conducted August 01, October 10 and 16, November 15, and December 13, 2007, November 07, 2008, July 23, August 26, and December 06, 2010, and June 15, 2011. Several field visits and conference meetings were held with State Parks, California Department of Fish & Game (CDGF), USFWS, National Marine Fisheries Service (NMFS) and the North Coast Regional Water Quality Control Board (NCRWQCB) to discuss impacts to and avoidance measures for resources.

The project is within range of four federally listed fish species. Three are known to use the South Fork Eel River in this area for spawning and rearing (Scott Bauer, CDFG, pers. comm.): Southern Oregon/Northern California Coastal (SONCC) coho salmon (*Oncorhynchus kisutch*), Northern California steelhead (*O. mykiss*), and California Coastal chinook salmon (*O. tshawytscha*). The fourth species, the green sturgeon - northern Distinct Population Segment (DPS) (*Acipenser medirostris*), is listed as a Species of Concern. Though there are historical reports of them in the South Fork Eel River, green sturgeons likely do not use this reach of the river, as they tend to use slower moving waters that are tidally influenced, such as river mouths (Kasey Sirkin, NMFS, pers. comm. June 01, 2011).

The drainages in which the work is proposed could not support anadromous fish, as the drainages are very shallow and outlet at least 100 feet above the ordinary high water mark (OHWM) of the river. Additionally, the underdrain systems will outlet at least 50 feet above the OHWM of the river. The Passage Assessment Database (PAD, CDFG) lists no fish barriers in the project area (accessed April 28, 2011). Thus, endangered species consultations with NOAA and CDFG are not required for fish.

The project location lies within federally designated critical habitat for Marbled Murrelet (MAMU) (*Brachyramphus marmoratus*), a species federally listed as *threatened* and State listed as *endangered*. Additionally, the project is within range and suitable habitat for the federally listed *threatened* northern spotted owl (NSO) (*Strix occidentalis caurina*). Since habitat exists, but no protocol surveys were conducted for NSO or MAMU, presence is assumed. A search of the CNDDDB database indicated the nearest recorded observation of MAMU is approximately 3.8 miles from the project area. There are historic breeding territories of NSO approximately one mile away (CNDDDB). An onsite evaluation with Bill McIver of USFWS and Michael VanHattem of CDFG on November 15, 2007, and again with Greg Schmidt of USFWS on August 26, 2010, assessed that suitable habitat for NSO and MAMU encompasses the project location.

Additionally, federal *candidate* species potentially in this area include the Western yellow-billed cuckoo (*Coccyzus americanus*) and Pacific fisher (*Martes pennanti pacifica*). The area does not provide suitable habitat for cuckoos; however, it does provide potential habitat for fishers. There is a documented occurrence of the fisher approximately 3.3 miles away (CNDDDB 2008).

The project is within range of two additional State-listed species, American peregrine falcon (*Falco peregrinus anatum*) and little willow flycatcher (*Empidonax traillii brewsteri*). However, no suitable habitat for either occurs in the project area.

California Department of Fish and Game Species of concern (not State listed) that are documented within a 9-quad area of the location include: Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*Accipiter striatus*) Golden Eagle (*Aquila chrysaetos*), osprey (*Pandion haliaetus*), Sonoma tree vole (*Arborimus pomo*), Townsend's big-eared bat (*Corynorhinus townsendii*), Humboldt marten (*Martes americana humboldtensis*), southern torrent salamander (*Rhyacotriton variegatus*), foothill yellow-legged frog (*Rana boylei*), northern red-legged frog (*Rana aurora aurora*), and Western tailed frog (*Ascaphus truei*). There is potential habitat in the project area for tree voles, Humboldt marten, and some of the amphibians and bats. The bird species of concern may peripherally use this habitat for foraging or roosting.

### **Plant Species of Concern**

Summer floristic surveys were conducted for the entire project location in July 2007. The area of the proposed project footprint, including the storm damage repair areas and potential construction staging areas, was surveyed. All plants were identified to the taxonomic level necessary to determine if they were sensitive plants or were species with unusual or significant range extensions. Spring surveys were conducted for part of the project area in Spring of 2008. Full Spring surveys will be conducted before construction begins. If any sensitive plants are found within the proposed work areas, ESA fencing will be installed to protect them.

*Lathyrus glandulosus* (sticky pea) (CNSP List 4) was identified approximately 45 ft north of PM 11.09 on the southbound side (river side) of SR 254. The plants occur in the roadside ditch and on the cut bank, which is a northwest-facing slope (where the slope goes suddenly steeply up) in a partially open canopy that receives afternoon sun. The population is approximately 65 ft long by 30 ft wide, and is the dominant plant species in the area it inhabits (Kim Hayler, pers. comm., June 17, 2011).

A population of about 75 *Lilium rubescens* (Redwood Lily) (CNPS List 4) was identified on the cut bank above the road approximately 30 ft south of PM 11.03, at the beginning of the DS-5 underdrain.

No other sensitive plants species were found.

### Wetlands and Other Waters

A delineation of wetlands and other waters was conducted in July 2007 by Jones & Stokes and in June 2011 by Caltrans biologist Carol Wilson within the proposed project area using the routine on-site determination method described in the *1987 U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987).

The project area contains two ephemeral drainages (OW-1 and 2) and one intermittent stream (OW-3) that originate north of SR-254. Waters that will be affected by the underdrain systems originate from hillslope runoff and subsurface flow. There are no wetlands within the project area.

One drainage (OW-1), at PM 11.03 (DS 1), consists of a deep-cut ravine within the project area that ranges from 18 to 36 inches wide at the OHWM before it enters the inlet and is conveyed by a 24-inch culvert. Above the project area, it appears that hillslope waters feed into this ravine, mainly from a ditch alongside an old logging roadbed. On the outlet side, the water falls onto previously

placed large RSP in steps down to the river, in a shaded, forested area. In this area, the watercourse is approximately 5 ft wide, based on the RSP that has been placed. The drainage pathway continues downhill to the South Fork Eel River, after exiting the project area. The water itself does not appear to have recently (in the past 4 years of field reviews) filled this 5-ft wide manmade watercourse. The OHWM is hard to detect because of the RSP, is likely at the base of the RSP, and is estimated to be 24 inches. No water has been seen in this drainage during any of several field visits conducted at various times of the year. The linear extent of the drainage within the project impact area is approximately 67 feet, including the culverted waters, and encompasses an area of approximately 0.003 acre.

The second ephemeral drainage (OW-2), at PM 11.05 (DS 2), is a roadside ditch that is approximately 15 inches wide, and parallels the road on the inlet side. It is conveyed into a drop inlet and by an 18-inch culvert under the road to outfall onto a steep, grassy slope. It continues downslope toward the river after exiting the project area. The linear extent of the drainage within the project impact area is approximately 100 ft, including the culverted waters, and encompasses an area of approximately 0.003 acre.

An intermittent stream (OW-3) occurs near the west side of the project area boundary, at PM 11.09. Intermittent stream OW-3 originates on the north side of SR-254, where a shallow, channelized ditch (24 inches wide at OHWM) is fed by an ill-defined network of swales that convey hillside runoff. Water from the ditch enters a drop inlet. Additionally, there is deep subsurface water which is picked up by an underdrain system and delivered into the drop inlet. From the drop inlet, water is conveyed underneath the highway via a 24-inch culvert before continuing downslope toward the South Fork Eel River. At the outlet, RSP has been placed down to the river, in a channel that averages 5 feet wide. The OHWM is hard to detect because of the RSP, and is likely at the base of the RSP, and is estimated to be 36 inches. Little water has been seen in this drainage during several field visits at various times of the year. Water can be heard trickling into the drop inlet, and seen trickling out of the culvert outlet, which harbors a thick carpet of moss. The intermittent stream was characterized as a non-navigable, relatively permanent water (NN-RPW) according to the jurisdictional analysis scheme outlined in the Rapanos Guidance (U.S. Environmental Protection Agency and Department of the Army 2007). All NN-RPWs are within the scope of USACE jurisdiction under Section 404 CWA. The linear extent of the drainage within the project impact area is approximately 136 feet, including the culverted waters, and encompasses an area of approximately 0.006 acre.

## **Potential Effects to Biological Resources, and Avoidance and Minimization Measures**

### Fish

The drainages in which the work is proposed do not support anadromous fish. No effects to fish in the South Fork Eel River are expected, as Best Management Practices (BMPs) will be used to control silt and to prevent sediment from entering waters.

### Marbled Murrelet and Northern Spotted Owl

Much of the project-generated sound, when added to the existing ambient conditions, is expected to reach over 90 decibels and work activities will potentially be within a visual-line-of-sight distance less than 131 ft (40 meters) from MAMU and NSO nests; therefore, measures to avoid impacts and harassment to MAMU and NSO will be used (USFWS 2006). These include observance of a work window outside of the NSO breeding season and most of the MAMU breeding season. Work

activities will be conducted from 2 hours after dawn to 2 hours before sunset from August 21<sup>st</sup> through September 15<sup>th</sup>, and during any hours from September 16<sup>th</sup> through October 15<sup>th</sup> (the end date of this window is to avoid impacts to water quality). Any work not involving work in the drainages may be conducted through January 31<sup>st</sup>.

Workers on the site will be directed to not leave any food or litter in the park or available in their vehicles that might attract corvids. The Resident Engineer (RE) will be responsible for enforcing this policy.

Tree removal will occur between September 15<sup>th</sup> and January 31<sup>st</sup>, to avoid impacts to migratory birds, MAMU and NSO. The Douglas-fir trees are potential suitable spotted owl nest trees, but are not likely used as such, being so close to the road. No suitable marbled murrelet nest trees (i.e., conifers with  $\geq 65$  inch dbh) will be directly impacted by the action. Informal consultation is being conducted with USFWS with a “*Not Likely to Adversely Affect*” concurrence for Marbled Murrelet and a “*No Effect*” concurrence for Northern Spotted Owl anticipated. Further, there will be only minor impacts to MAMU Critical Habitat, and thus “*No Adverse Modification to Critical Habitat*” (pers. comm., Greg Schmidt, USFWS, August 2010 and June 14, 2011).

### Mammals

No impacts to fisher or marten are anticipated. It is unlikely that the one or two Douglas-fir trees to be removed are used by fishers other than for temporary resting or minimal foraging. Thus, there will be “*No Effect*” on federal candidate Pacific Fisher (technical assistance with Greg Schmidt, USFWS, on June 14, 2011).

The one or two Douglas-fir trees that will be removed were surveyed on June 16, 2011 from the ground with binoculars for sensitive mammal species (tree voles and bats), and none were observed. However, occupancy is difficult to detect. Additionally, the ground was surveyed for fir needle resin ducts discarded by tree voles. None were found, but due to the difficulty of seeing them in the ground cover, this was inconclusive. While trees are felled, they will be monitored for the presence of these mammal species, and if any are using either tree, Caltrans will consult with CDFG on how to proceed.

### Amphibians

Two of the drainages (at PM 11.03 and 11.09, DS-1 and DS-3, respectively) provide potential habitat for amphibians. The areas of impact (at both the inlet and outlet sides) in these drainages will be surveyed for amphibians prior to work, and any found will be rescued and relocated.

### Plants

The occurrence of *Lathyrus glandulosus* (sticky pea) at approximately 45 feet north of PM 11.09 will be protected by Environmentally Sensitive Area (ESA) fencing, if the project footprint or staging areas encompass this area. A population of about 75 *Lilium rubescens* (Redwood Lily), on the cut bank above the road, approximately 30 ft south of PM 11.03, at the beginning of the DS-5 underdrain system, will be protected by ESA fencing. Fencing will be installed prior to the initiation of construction. Since no other sensitive plants species were found, the proposed project will not have any effects on sensitive plants. Full Spring surveys will be conducted before construction begins. If any sensitive plants are found within the proposed work areas, ESA fencing will be installed to protect them.

### Redwood Trees and Roots

Measures to be used to protect the large redwood and Douglas-fir trees and their roots in the vicinity of the project are found in the *California State Parks Natural Resources Handbook, Section c. Tree Protection, (DOM 0310.6.1)*.

The *structural root zone* (SRZ) of a redwood tree is the circular area around the tree measured from the outside of the trunk out to a distance 3X the dbh of the tree trunk. Structural (buttress) roots grow in this zone. State Parks recommends there be no construction activities in the SRZ of a protected tree.

The *Root Health Zone* (RHZ) is a circular area with the tree trunk at the center and a radius equal to 5X the dbh of the tree trunk. Severing intermediate and feeder roots in this zone puts the tree under some stress.

The culvert and inlet replacements of the three drainage systems were designed to avoid impacts to trees and their structural root zone, and minimize impacts in their root health zone. At DS-1, the existing headwall will not be replaced, but rather, protected in place to prevent disturbance to a 36-inch dbh redwood tree adjacent to the headwall. At DS-2, due to the depth and width of excavation to place the new concrete pipe inlet, the inlet location will be moved approximately 8 ft downslope of the existing inlet to prevent having to remove two 19-inch dbh redwood trees adjacent to the inlet. The existing inlet will be abandoned in place. At DS-3, it was not possible to design the new system to avoid all impacts to trees. One, 28-inch dbh Douglas-fir tree growing adjacent to the inlet will need to be removed. The tree is leaning and its roots appear to use the concrete inlet as support. A second, 24-inch dbh Douglas-fir may also need to be removed if its roots are found to be severely impacted by excavation (see guidelines below). There is no location to which the inlet can be moved to avoid trees, as there are large redwood and Douglas-fir trees throughout the area. It is expected that replacement of the failed drainage system will help remove saturation that is accelerating the slide activity in the area, and benefit the larger trees upslope by helping to slow their movement downhill and reduce the potential of their falling over. Many of the upslope trees are leaning, due to earth movement. Tree(s) removed will be transferred to State Parks for restoration work.

The placement of the underdrain systems is designed to avoid the structural root zone of the redwood trees growing along the roadside. However, the locations of roots are not absolutely predictable, and thus, onsite monitoring by a "tree root monitor" (Certified Arborist) will be done during excavation activities. The "tree root monitor" will be onsite during construction activities within the tree root health zones to advise construction, monitor and document tree root excavation. The tree root monitor's qualifications and the details of information documented during monitoring will be agreed upon by State Parks and Caltrans.

Wherever tree roots may be located within the vicinity of installation, the exact horizontal and vertical alignment of the underdrain systems will be determined in the field, under the guidance of qualified tree root monitor.

Special excavation techniques to protect roots shall be implemented around identified root zones. Special excavation techniques will include but will not be limited to hand digging or the use of an air spade. By using the special excavation techniques the, it will be possible to avoid cutting tree roots and clear the soil around them. Once the known depth is reached and no or very few small

(feeder) roots are growing, a small excavator bucket will be used to finish excavation to the required depth of 10-20 ft. Additionally, after 4 feet it is unsafe for hand excavation, which would require placing a person in the trench that cannot be shored (due to roots). After the underdrains are placed, the excavated area will be backfilled with permeable material (sand, gravel, or crushed stone). If any roots exist in these areas, the area around the roots will be backfilled with native soil, extending out to a distance that is both recommended by the tree root monitor and feasible.

### *Contingency*

State Park guidelines recommend that impacts to the SRZ and/or RHZ not exceed 30%. Therefore, if tree roots from trees within Caltrans right-of-way are encountered in the area of the intended underdrain placement, the Resident Engineer, tree root monitor and project biologist will determine whether to proceed with work in that area. If tree roots are determined to be from a tree outside of Caltrans right-of-way the tree root monitor will contact Resident Engineer and project biologist, the project biologist will coordinate with State Parks. Considering all recommendations from the tree root monitor and project biologist will inform the Resident Engineer of recommendations. The Resident Engineer will decide if one of two things will occur: 1) either the excavation can be accomplished by severing less than 30% of the tree roots, and will proceed. Tree roots greater than 1 inch that are severed will be cleanly cut and treated; or 2) the underdrain excavation and placement would sever more than 30% of the tree roots within the SRZ or RHZ, and the trench will be abandoned and refilled, and no underdrain placed in that location.

### *Increase in Impervious Surface*

Paving and the placement of shoulder backing can cause soil compaction and disturbance within the structural root zones of old growth redwoods. An increase in impervious surface may deprive trees of essential moisture.

Within the new structural section of the roadway (600 ft long, from station 10+00 to 16+00 on plan sheets L-1 and L-2), the existing impervious surface area is 16,588 ft<sup>2</sup>. This will be increased by 562 ft<sup>2</sup> (0.013 acre). Most of this will be on the river side of the road, between drainage systems 2 and 3. The RHZ of two Douglas-fir trees (one at 18-inch dbh, and one 50-inch dbh with three-trunks) are potentially within the area of increased impervious surface. Due to the small extent of this increase, it seems there is low potential for long-term impacts to the trees.

As proposed, the project would have no permanent impacts to listed species and minimal impacts to sensitive habitat.

### Waters

The South Fork Eel River Watershed is on the 303(D) List of impaired water bodies for impairment and/or threat of impairment to water quality by sediment and temperature. There will be no adverse effects to waters of the State or U.S., as BMPs will be used during construction activities. Work will not impact water quality or listed fish, since construction activities within waters will be limited to the low-flow period (typically, June 15<sup>th</sup> to October 15<sup>th</sup>) of any calendar year. If rain occurs, erosion control will be set in place during construction to avoid any runoff to the South Fork Eel River. All excavated material will be moved to an appropriate staging area or disposal site such that it cannot be washed into streams or rivers. All drainages are seasonal and are typically dry during the low-flow season. It will be the responsibility of the contractor to capture and convey any flow during construction operations.

## Avoidance and Minimization Measures

The following measures will be employed during construction of the project:

- 1) Construction activities that include work in waters will be limited to August 20<sup>th</sup> through October 15<sup>th</sup> of any calendar year, to avoid adverse effects to MAMU, NSO and listed salmonids. Within the August 20<sup>th</sup> to September 15<sup>th</sup> period, a further restriction will apply; work must begin at least two hours after sunrise and must end by 2 hours before sunset. After October 15<sup>th</sup> no work in waters may occur, but other work may be conducted until January 31<sup>st</sup>.
- 2) Vegetation removal will occur between September 15<sup>th</sup> and January 31<sup>st</sup> to avoid the nesting season of migratory birds and Northern Spotted Owl and Marbled Murrelet.
- 3) Spring floristic surveys will be conducted before construction begins. If any sensitive plants are found within the proposed work areas, ESA fencing will be installed to protect them.
- 4) ESA fencing will be installed around *Lilium rubescens* (Redwood lily) on the cut bank above the road approximately 30 ft south of PM 11.03, at the north end of the DS-5 underdrain, prior to the commencement of construction, under the guidance of a qualified biologist.
- 5) If the project footprint or staging areas encompass the area at approximately 45 ft north of PM 11.09, ESA fencing will be installed (prior to the commencement of construction) around *Lathyrus glandulosus* (sticky pea), under the guidance of a qualified biologist.
- 6) To help avoid impacts to trees, Environmentally Sensitive Areas (ESA) will be delineated on the plans around the areas of forest where no work will occur. Contractors will be advised to keep equipment out of these areas.
- 7) Amphibian surveys. At PM 11.03 and 11.09, DS-1 and DS-3, respectively, the areas of impact (at both the inlet and outlet sides) in these drainages will be surveyed for amphibians by a qualified biologist prior to work, and any found will be rescued. Relocation will be conducted by the biologist. Clean buckets will be used to move amphibians to a safe location in appropriate habitat within the same drainage, outside of the area of impact.
- 8) Tree vole and bat surveys. While trees are felled, they will be monitored for the presence of these mammal species, and if any are using either tree, Caltrans will consult with CDFG on how to proceed.
- 9) Onsite monitoring by a "tree root monitor" (certified arborist) will be done during excavation activities. Special excavation techniques to protect roots shall be implemented around identified root zones. Special excavation techniques will include but will not be limited to hand digging or the use of an air spade.
- 10) Workers on the site will be directed to not leave any food or litter in the park or available in their vehicles that might attract corvids. The Resident Engineer (RE) will be responsible for enforcing this policy.
- 11) Best Management Practices will be used to control silt and to prevent sediment from entering adjacent waters. These may include the use of silt fences, straw bales, and fiber rolls or others. Construction activities within waters will be limited to the low-flow period (typically, June 15<sup>th</sup> to October 15<sup>th</sup>) of any calendar year. If rain occurs, erosion control will be set in place during construction to avoid any runoff to the South Fork Eel River. All excavated material will be moved to an appropriate staging area or disposal site such that it cannot be washed into streams or rivers. All drainages are seasonal and are typically dry during the low-flow season. It will be the responsibility of the contractor to capture and convey any flow during construction operations.
- 12) Revegetation of disturbed areas will be done under the guidance of a Caltrans Landscape Architect and Revegetation Specialist, and will incorporate regionally appropriate native plant species. The Revegetation and Monitoring Plan will be submitted to State Parks for concurrence.

### *Permits and Coordination*

#### Anticipated Consultation and Permit Requirements:

Based on discussion and technical assistance with National Marine Fisheries Service (NMFS) on October 16, 2007 and on June 01, 2011, there would be no effect on federally listed salmonids or green sturgeon, if Avoidance and Minimization Measures (above) are observed. Thus, consultation under Section 7 of the Endangered Species Act with NMFS is not needed. Informal consultation will be carried out with USFWS for MAMU, with a concurrence of “*Not Likely to Adversely Affect*”, and for MAMU Critical Habitat with a concurrence of “*No Adverse Modification to Critical Habitat*”. Because all work will be conducted outside of the NSO breeding season, there will be *No Effect* on NSO.

The project will require the following biological permits and agreements:

- Section 404 Nationwide Permit from the U.S. Army Corps of Engineers
- Section 401 certification from the North Coast Regional Water Quality Control Board
- 1602 Streambed Alteration Agreement from the California Department of Fish and Game



## **TECHNICAL MEMORANDUM**

Geotechnical Engineering  
Materials Testing & Inspection  
Environmental Science & Engineering  
Water Resources  
Earthquake Engineering  
Air Quality

Date: October 31, 2008

To: Charlie Narwold, Sr. Engineering Geologist  
Division of Engineering Services  
Office of Geotechnical Design North  
Branch B

From: Jeffrey C. Richmond, C.E.G.  
William V. McCormick, C.E.G.

Kleinfelder Project: 93276/21-REP

Subject: Geotechnical Data Report  
Storm Damage Repair  
HUM 254 PM 11.1  
EA: 01-475301  
Humboldt County, CA

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### **1 PROJECT DESCRIPTION**

During the winter of 2005/2006, a landslide involving the northeast and southwest bound lanes occurred on Highway 254, near milepost 11.1, northeast of Myers Flat, in Humboldt County, California. The location of the site is shown on Plate 1, Site Location. As shown on the Site Plan, Plate 2, the landslide feature currently affecting the roadway is one active center within a much larger active complex. The width of the landslide feature is approximately 400 feet as measured along the southwest edge of the roadway. The landslide mass extends approximately 150 feet downslope (southeast), to the bank of the Eel River (see Plate 2, Site Plan). Intermediate head scarp and side scarp cracking across the roadway was observed at stations 10+55 to 10+80 and 13+84 to 14+65. No existing retaining structures are located within the limits of this project.

The purpose of this project is to assess and characterize the nature of the landslide movement currently affecting the roadway through site reconnaissance, subsurface investigation, limited laboratory testing, and monitoring using geotechnical instrumentation.

## 2 GEOTECHNICAL SCOPE OF WORK

The scope of our work for this project included the following:

- Review of available geologic information addressing this area.
- Geologic mapping of the landslide and immediate vicinity.
- Drilling, logging, and sampling of six (6) exploratory borings.
- Installation of four (4) inclinometers and two (2) piezometers at the boring locations.
- Laboratory testing of selected samples from the borings.
- Preparation of log of test borings (LOTBs).
- Preparation of this summary report.

## 3 PERTINENT REPORTS AND INVESTIGATIONS

In preparation of this memorandum, the following documents/reports were reviewed:

2000, McLaughlin, R. J. et al., United States Geological Survey Miscellaneous Field Studies MF-2336, Version 1.0, Geology of the Cape Mendocino, Eureka, Garberville, and Southwestern part of the Hayfork 30X60 Minute Quadrangles and Adjacent Offshore Area, Northern California)

Caltrans Seismic Hazard Map and Report, Mualchin, 1996 with errata dated November 2006.

## 4 SITE DESCRIPTION AND TOPOGRAPHY

At Post Mile 11.1, the two lane Highway 254 roadway is relatively flat. Slope gradients to the southeast (down slope) of the roadway range from approximately 1.3H:1V (Horizontal:Vertical) on the face of the roadway fill prism to approximately 2.3H:1V at the toe of the landslide. In localized areas, slope gradients as steep as 0.7H:1V exist. Gradients to the northwest (up slope) within the large landslide complex range from essentially flat to as steep as 1.3H:1V.

The landslide currently impacting the roadway is characterized as a slump-flow complex with an estimated mass thickness of up to approximately 60 or more feet, based on inclinometer data from installations at the site. Pavement cracks associated with recent landslide movement extend across both travel lanes of Highway 254. Recent paving from project station 11+60 to 13+42 likely conceals additional tension cracking not visible during our reconnaissance. The locations of the pavement cracking and recent pavement work are indicated on Plate 2, Site Plan.

As previously indicated, the landslide feature currently affecting Highway 254 at PM 11.1 is one active center of movement within a much larger landslide complex which extends northeast (up slope) approximately 3,400 feet. The northeast margin of the smaller feature also marks the margin of the larger complex and is located at approximate project station 10+64. The apparent southwest margin of the large complex is located at approximately PM 11.19. During our reconnaissance, minimal distress was evident on the recently resurfaced pavement in this location, aside from a moderate gradient increase to the northeast. However, an abandoned roadway located slightly down slope of Highway 254 exhibited 1.5 to 2 feet of offset associated with previous landslide movement. Evidence of both dormant and active landslide activity was observed northwest (up slope) of the roadway in the vicinity of PM 11.1 to 11.19. It is estimated the large complex may have an overall thickness approaching 100 feet or more.

Drainage flow from northwest of the roadway is collected within a v-ditch adjacent to the gravel shoulder in the vicinity and captured within corrugated metal culverts which extend below the roadway and outfall downslope to the southeast. Drainage from the roadway within the landslide currently flows down over the slope face of the fill prism. Due to recent grading for the access roadway, the fill prism slope face is largely denuded of any form of vegetation. The landslide mass below the roadway extending down to the river supports a tall growth of wild grasses, blackberry vines, as well as mature fir, madrone and willow trees. A well established redwood forest covers the area northwest of the roadway.

## **5 SUBSURFACE EXPLORATION AND LAB TESTING**

### **SUBSURFACE INVESTIGATION**

Six (6) exploration borings, designated R-08-001 through R-08-006, were drilled at this site by Caltrans Office of Drilling Services using rotary wash drilling methods. Drilling was performed on April 28, 2008, through May 8, 2008. All drilling and sampling operations were supervised by Kleinfelder staff. Test borings were performed using truck-mounted Acker MPCA drill rig utilizing 102-mm diameter and 93-mm (HXB) casing equipped with a tungsten carbide Geo Barrel and #8 diamond impregnated core bit, respectively. Borings R-08-001 and R-08-002 were drilled from Highway 254 pavement level on the shoulder of the west-bound traffic lane to a maximum depth of approximately 71 feet. Borings R-08-003 and R-08-004 were drilled from the Highway 254 pavement level on the shoulder of and in the east-bound traffic lane to a depth of approximately 81 feet. Borings R-08-005 and R-08-006 were drilled downslope (southeast) of the roadway within an access road constructed by Caltrans to provide access for the drill rig. The access road was located approximately 23 feet vertically beneath Highway 254 at its lowest point. Borings R-08-005 and R-08-006 were advanced to a depth of approximately 75 feet beneath the access road surface. The approximate locations of the borings are shown on Plate 2.

Samples of the soil and bedrock were obtained by coring, using equipment as described above, and using 2-inch (inside diameter) Modified California and 1.4-inch (inside diameter) Standard Penetration Test samplers each driven with an automatic 140-pound hammer dropped 30 inches. The blows required to drive the Modified California and Standard Penetration Test samplers were recorded for each 6 inches of penetration or fraction thereof. Visual classifications were made in accordance with the attached Soil and Rock Legend. The results of the exploration are summarized on the attached Log of Test Borings.

As part of this work, well casing was installed in the bore hole for Borings R-08-001 and R-08-002 to permit future groundwater monitoring. In each of the borings, 2-inch-diameter, slotted well screen was installed from the bottom of the bore hole (71 and 70 feet) to within 20 feet of the ground surface; the remainder of the well was constructed with solid pipe to the surface. The annular space around the well casing was backfilled with well sand to within 10 to 12 feet below the ground surface, and the remainder was backfilled with bentonite chips. In addition, four slope inclinometer casings were installed within the bore hole for Borings R-08-003, R-08-004, R-08-005, and R-08-006 to approximately 79 feet, 79 feet, 75 feet, and 74.5 feet below the ground surface respectively. The casing was perforated for its full length except for the upper 10 feet to permit possible monitoring of future water levels within the casing. The annular space around the perforated portion of the casing was backfilled with sand and the upper 10 feet were backfilled with bentonite. The monitoring wells and inclinometers were completed at the surface with traffic-rated access boxes. No inclinometer readings or water level measurements were obtained at the time of installation. Inclinometer readings were obtained by Caltrans between May and August of 2008. Inclinometer monitoring results are presented in Appendix C.

## LABORATORY TESTING

Laboratory testing of selected soil samples obtained from the test borings was performed at Kleinfelder's Geotechnical Laboratory in Santa Rosa, California. The purpose of the testing was to verify the field descriptions and identifications, and obtain preliminary engineering characteristics of the landslide materials. Tests performed included:

- Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass (ASTM D2216)

- Density of Soil in Place by the Drive-Cylinder Method (ASTM D2937)

- Particle-Size Analysis of Soils (ASTM D422)

- Liquid Limit, Plastic Limit, and Plasticity Index of Soils (ASTM D4318)

- Unconsolidated, Undrained, Triaxial Compression Test for Cohesive Soils (ASTM D2850)

- Standard Test Method for Direct Shear Test of Soils Under Consolidated Drained Conditions (ASTM D3080-04)

The results of the laboratory tests, together with a summary sheet, are provided in Appendix B.

## 6 SITE GEOLOGY AND SUBSURFACE CONDITIONS

### REGIONAL GEOLOGY

Regional Geology is illustrated on Plate 6, "Regional Geology." The site is located in the northern Coast Ranges Geomorphic Province, a dynamic region of California characterized by complex folding and faulting. The province is generally characterized by northwest-trending mountain ranges and intervening valleys that are a reflection of the dominant northwest structural trend of the bedrock in the region. The basement rock in the region is presumed to consist of the Franciscan Complex, a diverse group of igneous, sedimentary, and metamorphic rocks. The Franciscan Complex is part of a northwest trending belt of material immediately adjacent to the eastern edge of the San Andreas Fault system, which is located approximately 20 miles southwest of the site (Plate 7). The site is located approximately 17 miles east of the Cape Mendocino Triple Junction where the Gorda, North American, and the Pacific plates meet.

### SITE GEOLOGY

The geology of the site and vicinity has been mapped by McLaughlin et al. (2000, United States Geological Survey Miscellaneous Field Studies MF-2336, Geology of the Cape Mendocino, Eureka, Garberville, and Southwestern part of the Hayfork 30 X 60 Minute Quadrangles and Adjacent Offshore Area, Northern California). McLaughlin et al. (2000) indicates the project site vicinity is underlain by the Tertiary age Yager Terrane within the Coastal Belt Franciscan Complex. The bedrock unit is comprised of sheared and highly folded mudstone with interbedded sandstone and conglomerate. The site is mapped within the southeastern edge (toe) of a landslide which extends approximately 3400 feet to the north. Immediately south of the site, Quaternary alluvium is mapped adjacent to the Eel River. In addition, the axis of a southward plunging anticline is mapped approximately 350 feet east of the site. That portion of the McLaughlin et al. (2000) publication which covers the site is presented on Plate 6 of this Memorandum.

### SUBSURFACE CONDITIONS

The following table summarizes the drilling program performed for this investigation.

**Table 1: Hwy 254 PM 11.1 Boring Summary**

I.D.	Approx. Station	Offset <sup>(1)</sup>	Depth of Boring (ft)	Surface Elev. (ft)	Date Completed	Depth to Bedrock (ft)
R-08-001	13+93	17 feet right	71.3	252+/-	5-1-08	65.0
R-08-002	12+67	19 feet right	70.8	245+/-	4-30-08	56.5
R-08-003	13+95	20 feet left	81.0	249+/-	4-29-08	Not Encountered
R-08-004	12+76	13 feet left	80.8	244+/-	4-29-08	63.5
R-08-005	13+50	73 feet left	75.3	217+/-	5-6-08	50
R-08-006	12+86	39 feet left	75.3	232+/-	5-8-08	56.8

(1) Approximate distance from highway centerline, facing in direction of increasing stationing.

Borings R-08-001 and R-08-002 were drilled on the gravel shoulder located adjacent to the northwest side (westbound lane) of the roadway. Fill was encountered in these borings to depths of 6.5 to 9.5 feet. The fill typically consisted of silty gravel with sand to gravelly silty clay with sand. A six-inch-thick layer of asphalt was encountered in boring R-08-002 two feet below existing grade. Beneath the fill, active landslide deposits were encountered to depths of between 41 and 44 feet. Boring R-08-001 encountered sub-rounded gravel with varied amounts of sand and clay to a depth of approximately 34.5 feet. As this boring was located within the trend of a well-defined drainage, we interpret these granular deposits to be alluvial deposits and/or rapid debris flow deposits incised into and/or deposited within the landslide mass. The landslide deposits grade to clayey sand with gravel, derived from sandstone and shale bedrock from 34.5 to 41 feet. In Boring R-08-002, active landslide deposits are comprised of gravelly clay and clayey sand derived from shale bedrock to a depth of 44 feet. In both borings, apparently dormant landslide deposits consisting of gravelly clay and clayey gravel were encountered to depths of 65 and 56.5 feet. In general, the apparently dormant deposits are typically stiffer/denser than the active deposits overlying them, and locally exhibit discontinuous and convolute relic rock structure. In both borings, the dormant landslide deposits are underlain by soft, very intensely fractured shale bedrock.

Borings R-08-003 and R-08-004 were drilled on the gravel shoulder located adjacent to and on the northwest edge (eastbound lane) of the roadway. In Boring R-08-003, fill comprised of gravel and gravelly clay was encountered to a depth of 9 feet. Boring R-08-004 encountered asphalt concrete with thin sandy silt fill layers to a depth of 9.75 feet, underlain by additional roadway fill comprised of gravel with varied amounts of sand and sandy clay with gravel to a depth of 20.5 feet. The fill in Borings R-08-003 and R-08-004 is underlain by active landslide deposits consisting of clay with varied amounts of silt, sand and gravel, silty clayey sand with gravel, and clayey gravel with sand to depths of 59 (based on inclinometer data provided by Caltrans) and 26 feet, respectively. An intermediate shear zone related to landslide movement

was identified in boring R-08-003 at a depth between 26 and 27 feet. It should be noted that while Boring R-08-003 is located within the same drainage trend as R-08-001, no sub-rounded gravel deposits were encountered. Given the active scarp which separates the borings as well as the accelerated down slope movement below the scarp, it is likely the gravel deposits have been truncated and displaced further south towards the river. The active landslide deposits in the borings are underlain by apparently dormant landslide deposits, consisting of sandy and gravelly clay. These deposits were encountered to a depth 63.5 feet in boring R-08-004, and are underlain by soft, very intensely fractured shale bedrock. The dormant landslide deposits were encountered to the maximum depth explored (81 feet) in Boring R-08-003. Marginal rock structure and stiffness were noted below a depth of 63 feet, with circulation return at approximately 66 feet.

Borings R-08-005 and R-08-006 were drilled on the access road constructed below (southeast) the Highway 254 roadway. Fill consisting of silty sand with gravel was encountered to depths of 9.5 and 4 feet in the borings, and was placed for the drill rig access road and during prior grading activities. The fill is underlain by active landslide deposits comprised of silty clay and clayey sand with varied amounts of gravel. Active landslide deposits were encountered in Borings R-08-005 and R-08-006 to depths of 25 and 19.5 feet, respectively, based on inclinometer data provided by Caltrans. Dormant landslide deposits underlie the active deposits and were encountered to depths of 50 and 56.8 feet. The dormant landslide deposits consist of sandy clay and clayey sand with varied amounts of gravel, dominantly derived from shale bedrock. The dormant deposits are underlain by soft, very intensely fractured shale bedrock.

The in-place bedrock encountered in the borings primarily consisted of soft, very intensely fractured shale. Landslides occurred within the bedrock formation, and the structure of the landslide deposits and the in-place bedrock are very similar. Transitions should be considered approximate and the depth of active sliding should continue to be monitored by inclinometer readings.

This is a summary of conditions encountered in the six borings. More detailed information is presented on the log of test borings. Variations in conditions between the borings should be expected.

Our interpretation of the subsurface geologic conditions is presented on Plates 3 through 5.

## **7 GROUNDWATER**

Due to the use of drilling fluid, it was not possible to record groundwater depths at the time of drilling. Periodic groundwater monitoring was performed in May through August of 2008 by Caltrans technicians. The results indicate minor fluctuation (+/- 4 to 5 feet) during the monitoring period within the installations. The average groundwater surface for the monitoring period ranges in elevation between approximately 183 and 220 feet above mean sea level

(msl), and slopes to the southeast (down slope) in the direction of the Eel River. Approximate elevation of the river level at the time of our investigation was approximately 161 feet above msl. In addition, the groundwater elevations in the boring located on trend with the defined drainage (Borings R-08-001, R-08-003, and R-08-005) are approximately 17 to 20 feet higher than the borings to the northeast. A summary of calculated average groundwater elevations in each of the borings is presented in Table 2, below.

**Table 1: Hwy 254 PM 11.1 Groundwater Elevation Summary**

I.D.	Approx. Station	Offset <sup>(1)</sup>	Depth of Boring (ft)	Surface Elev. (ft)	Depth to Groundwater <sup>(2)</sup>	Groundwater Elevation <sup>(3)</sup>
R-08-001	13+93	17 feet right	71.3	252+/-	32.3	220+/-
R-08-002	12+67	19 feet right	70.8	245+/-	46.3	199+/-
R-08-003	13+95	20 feet left	81.0	249+/-	32.0	217+/-
R-08-004	12+76	13 feet left	80.8	244+/-	58.0	186+/-
R-08-005	13+50	73 feet left	75.3	217+/-	16.2	201+/-
R-08-006	12+86	39 feet left	75.3	232+/-	48.6	183+/-

- (1) Approximate distance from highway centerline, facing in direction of increasing stationing.
- (2) Average depth in feet to groundwater during the monitoring period (May through August, 2008) as measured from the top of casing.
- (3) Average groundwater elevation in feet above mean sea level (msl)

The results of the groundwater monitoring program provided by Caltrans are attached.

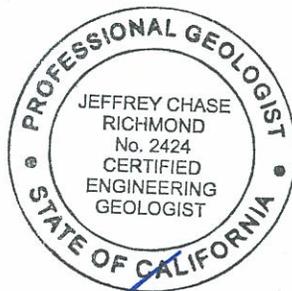
## 8 EARTHQUAKE FAULTS AND SEISMICITY

According to the Caltrans Seismic Hazard Map and Report (CSHM, Mualchin, 1996 with errata dated March 2006), the nearest fault is the Russ fault, which is located approximately 3 miles northeast of the site. The Russ fault is capable of generating earthquakes with a maximum credible earthquake (MCE) magnitude of 7.50. The Caltrans Seismic Hazard Map and Report (1996) locates the site between the 0.5g and 0.6g Peak Bedrock Acceleration (PBA) contours associated with the Russ fault. We recommend a PBA value of 0.6g and corresponding Peak Ground Acceleration (PGA) of 0.6g for future analysis and design at this site. The PGA is estimated based on site soil class C. A portion of the Caltrans Seismic Hazard map is shown on Plate 7.

The site does not lie within an Alquist-Priolo Special Studies Zone (CDMG, 1997). No active faults are mapped crossing the project site nor do any project towards the site.

**9 CLOSURE**

If you have any questions regarding the information provided herein, please contact us at 707.571.1883.



Jeffrey C. Richmond, CEG 2424  
Project Geologist



William V. McCormick, CEG 1673  
Principal Engineering Geologist

## 10 ATTACHMENTS

### **Plates**

Plate 1 Site Location

Plate 2 Site Plan

Plate 3 Section A-A'

Plate 4 Section B-B'

Plate 5 Section C-C'

Plate 6 Regional Geology

Plate 7 California Seismic Hazard Map

### **Appendix A**

Log of Test Borings (7 pages)

### **Appendix B**

Laboratory Test Summary (1 page)

Laboratory Test Data Plates

### **Appendix C**

Slope Inclinometer Monitoring Results (4 pages)

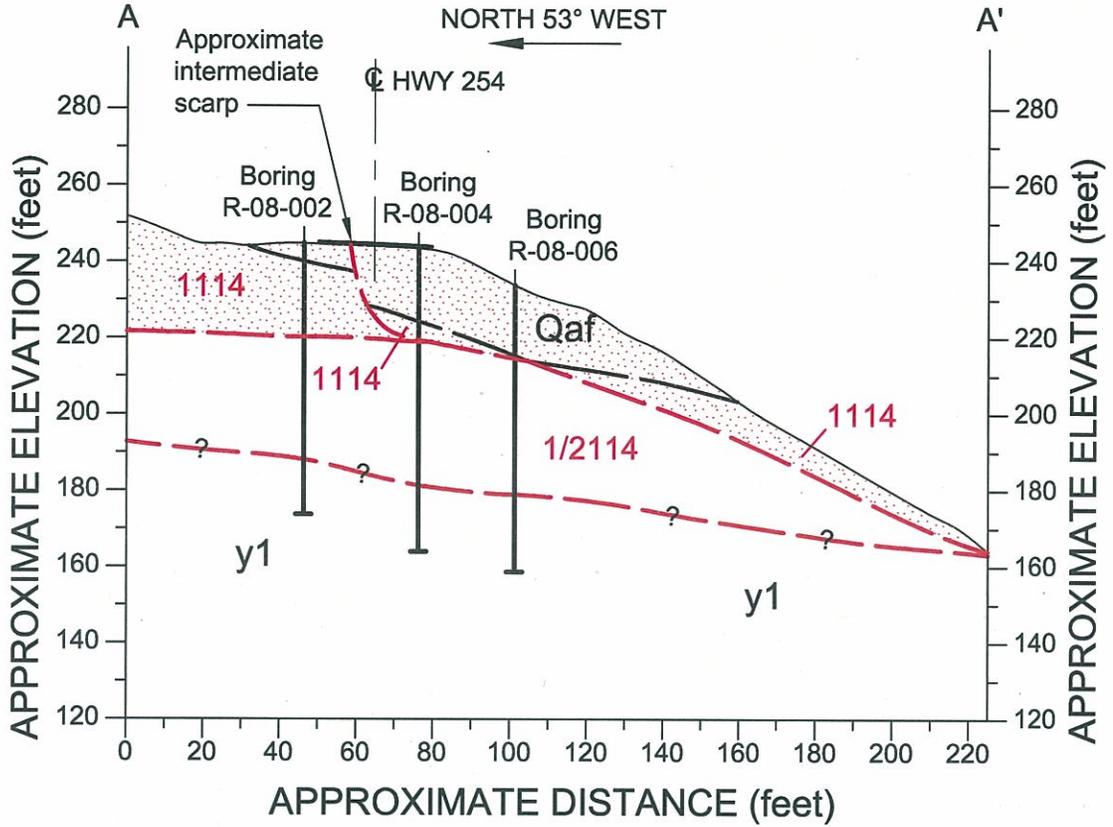
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# ***PLATES***

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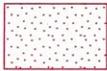
**EXPLANATION**

Qaf

Artificial Fill

y1

Coastal Belt Franciscan Complex;  
Yager Terrace Bedrock



Landslide Center of Movement  
Currently Affecting Roadway



Geologic Contact  
(dashed where approximate)



Landslide Contact  
(dashed where approximate)

1114

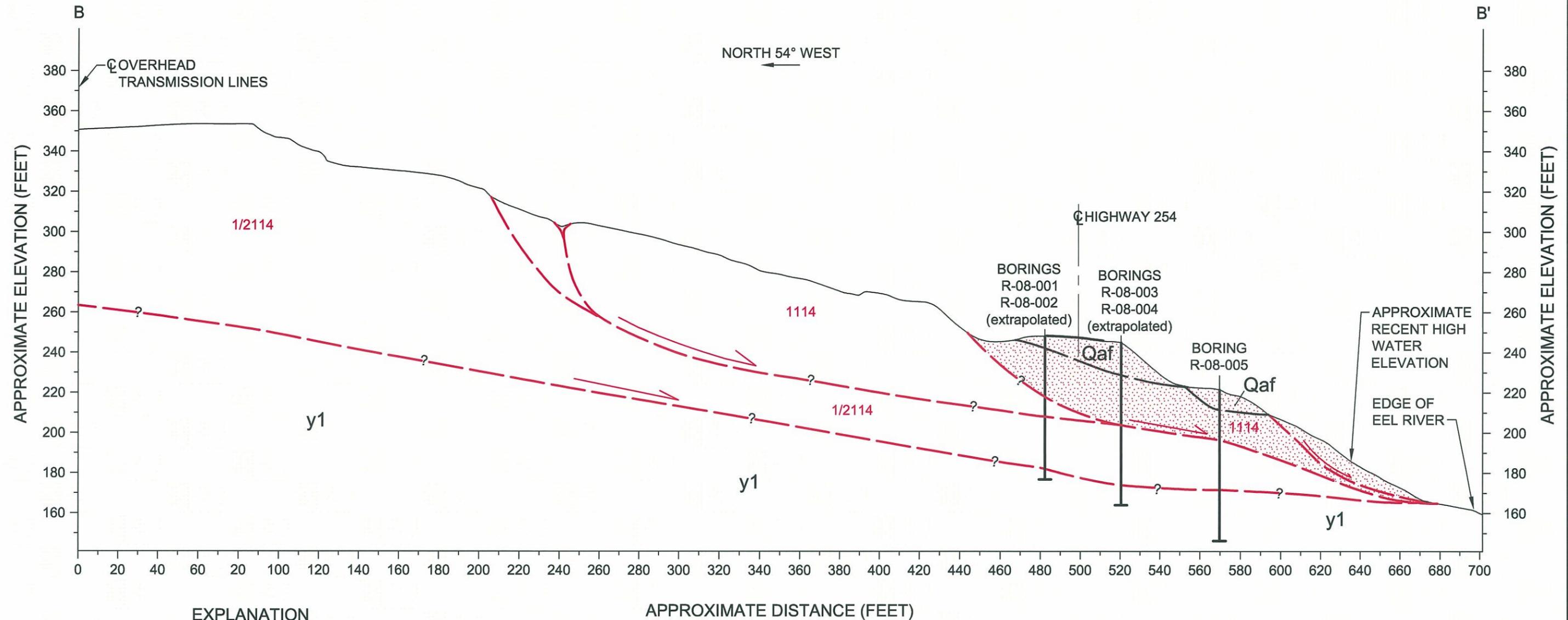
Landslide Identification  
Number (reference landslide  
identification chart)

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	PROJECT NO.	93276	<b>CROSS SECTION A - A'</b>	PLATE
	DRAWN:	OCT 2008		
	DRAWN BY:	PH	HIGHWAY 254 P.M. 11.05 EA 01-475301 HUMBOLDT COUNTY, CALIFORNIA	<b>3</b>
	CHECKED BY:	JR		
	FILE NAME:	93276-6.dwg		

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**EXPLANATION**

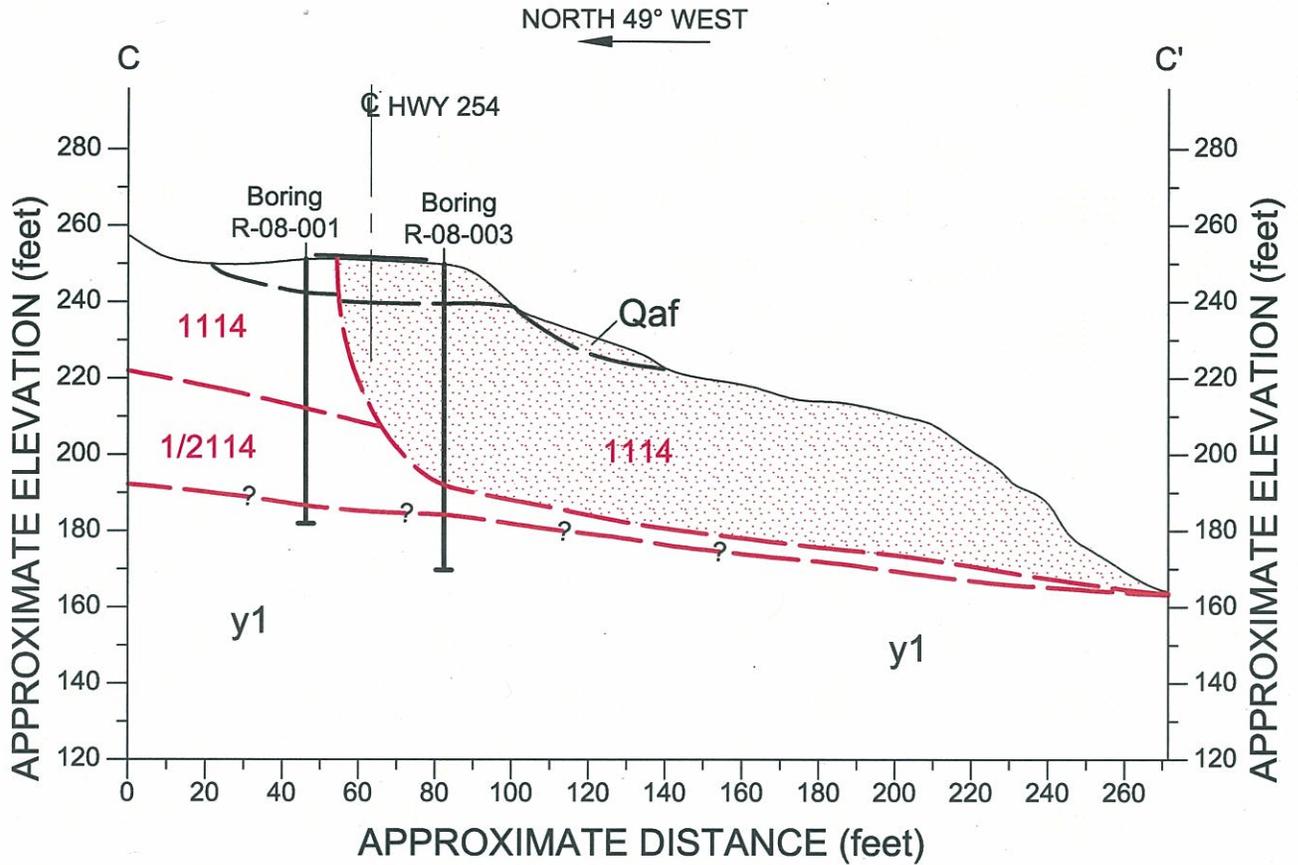
- Qaf** Artificial Fill
- y1** Coastal Belt Franciscan Complex;  
Yager Terrace Bedrock
- Landslide Center of Movement  
Currently Affecting Roadway
- Geologic Contact  
(dashed where approximate)
- Landslide Contact  
(dashed where approximate)
- 1114** Landslide Identification Number  
(reference landslide identification chart)

NOTE:  
 SECTION B - B' WAS HAND LEVEL FIELD SURVEYED IN  
 MAY 2008 AND MAY DIFFER FROM THE TOPOGRAPHY  
 AND MAPPING AS SHOWN ON THE SITE PLAN, PLATE 2.

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DRAWN BY:	PH		
CHECKED BY:	JR		
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**EXPLANATION**

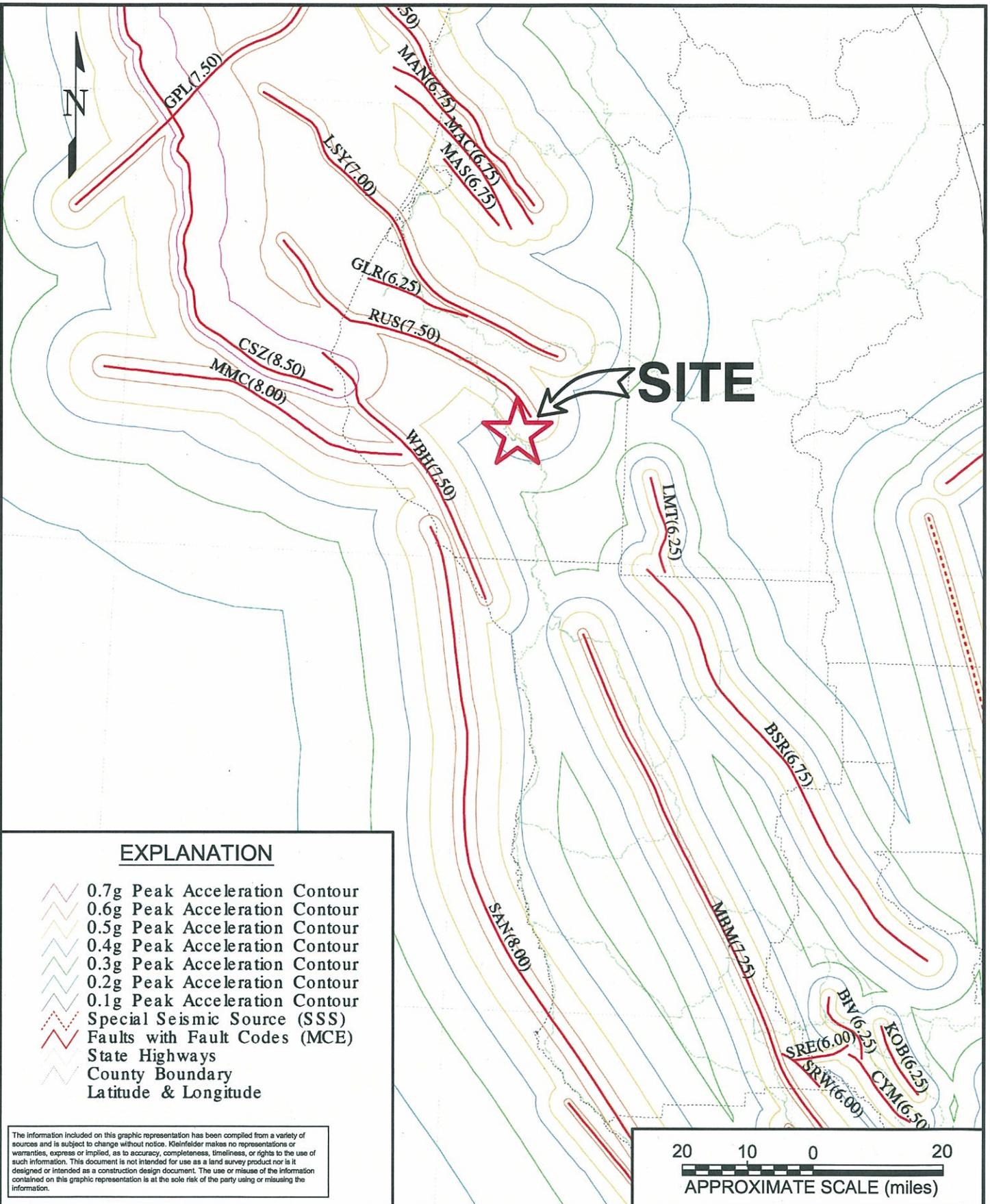
- Qaf** Artificial Fill
- y1** Coastal Belt Franciscan Complex; Yager Terrace Bedrock
- Landslide Center of Movement Currently Affecting Roadway
- Geologic Contact (dashed where approximate)
- Landslide Contact (dashed where approximate)
- 1114** Landslide Identification Number (reference landslide identification chart)

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	PROJECT NO. 93276	<b>CROSS SECTION C - C'</b>	PLATE
	DRAWN: OCT 2008		<b>5</b> HIGHWAY 254 P.M. 11.05 EA 01-475301 HUMBOLDT COUNTY, CALIFORNIA
	DRAWN BY: PH		
	CHECKED BY: JR		
FILE NAME: 93276-7.dwg			





**EXPLANATION**

- 0.7g Peak Acceleration Contour
- 0.6g Peak Acceleration Contour
- 0.5g Peak Acceleration Contour
- 0.4g Peak Acceleration Contour
- 0.3g Peak Acceleration Contour
- 0.2g Peak Acceleration Contour
- 0.1g Peak Acceleration Contour
- Special Seismic Source (SSS)
- Faults with Fault Codes (MCE)
- State Highways
- County Boundary
- Latitude & Longitude

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PROJECT NO.	93276
DRAWN:	OCT 2008
DRAWN BY:	PH
CHECKED BY:	JR
FILE NAME:	93276-3.dwg

**CALIFORNIA SEISMIC HAZARD MAP (MUALCHIN 1996)**

HIGHWAY 254 P.M. 11.05  
 EA 01-475301  
 HUMBOLDT COUNTY, CALIFORNIA

PLATE  
**7**



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# ***APPENDIX A***

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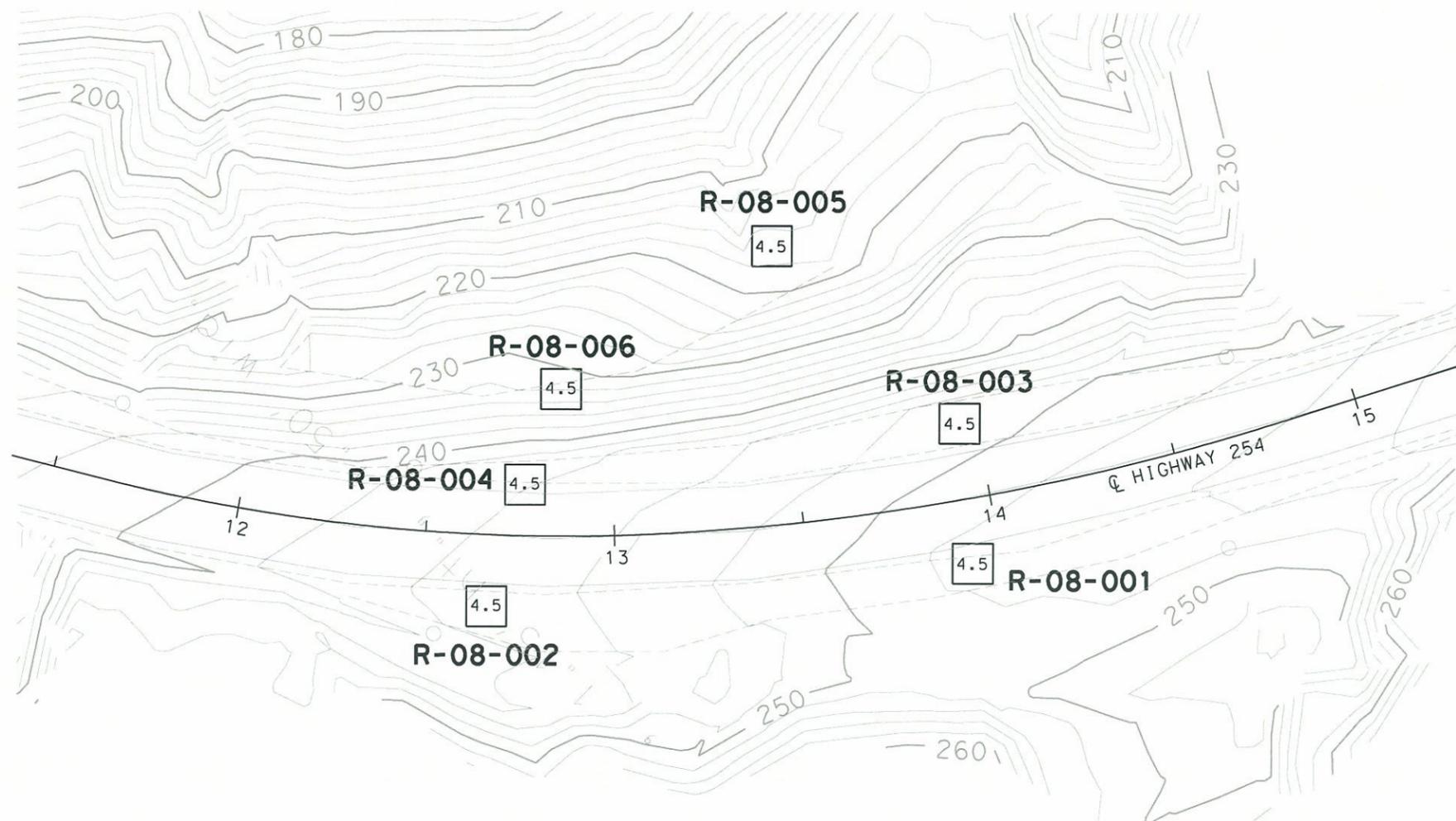


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Q1	Hum	254	11.1		

REGISTERED GEOLOGIST: *William V. McCormick III* DATE: 10-9-08  
 PLANS APPROVAL DATE: \_\_\_\_\_  
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REGISTERED GEOLOGIST  
 WILLIAM V. McCORMICK III  
 No. 1673  
 Exp. 11-30-08  
 CERTIFIED ENGINEERING GEOLOGIST  
 STATE OF CALIFORNIA

KLEINFELDER  
 2240 NORTHPOINT PKWY.  
 SANTA ROSA, CA 95407



**PLAN**  
1"=20'

**Notes:**

1. 2" samples were taken using a modified California split-barrel sampler with an inside diameter (I.D.) of 2" and an outside diameter (O.D.) of 2 1/2".
2. 1.4" samples were taken using a SPT split-barrel sampler with an inside diameter (I.D.) of 1.4" and an outside diameter (O.D.) of 2".
3. An automatic hammer (140 lb) with a 30" drop was used to advance the sampler.
4. Blowcounts noted for boring are field blowcounts and have not been corrected.
5. Blowcounts 50/5 means 50 blows per 5" penetration.
6. This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (June 2007)

**BENCHMARKS**

STATION	N	E	ELEV (FT)	DESCRIPTION

**SURVEY CONTROL**

1. Coordinates bearing and distances are based on the California State Plane Coordinate system of NAD 83 (1986). Elevations are based on NAVD88.

DESIGN OVERSIGHT ENGINEER:	SIGN OFF DATE:	<b>PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION</b>	BRIDGE NO.:	<b>HIGHWAY 254 @ PM 11.05</b>
FUNCTIONAL SUPERVISOR:	DRAWN BY: A. Sanchez	FIELD INVESTIGATION BY: Kleinfelder May, June 2008	POST MILES:	<b>LOG OF TEST BORINGS 1 of 7</b>
NAME:	CHECKED BY: W. McCormick	PROJECT ENGINEER:	11.1	
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		0 1 2 3		REVISION DATES: 10-9-08

DATE PLOTTED => \$TIME USERNAME => \$USER

NOTE: This LOTB sheet was prepared generally in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (June 2007)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
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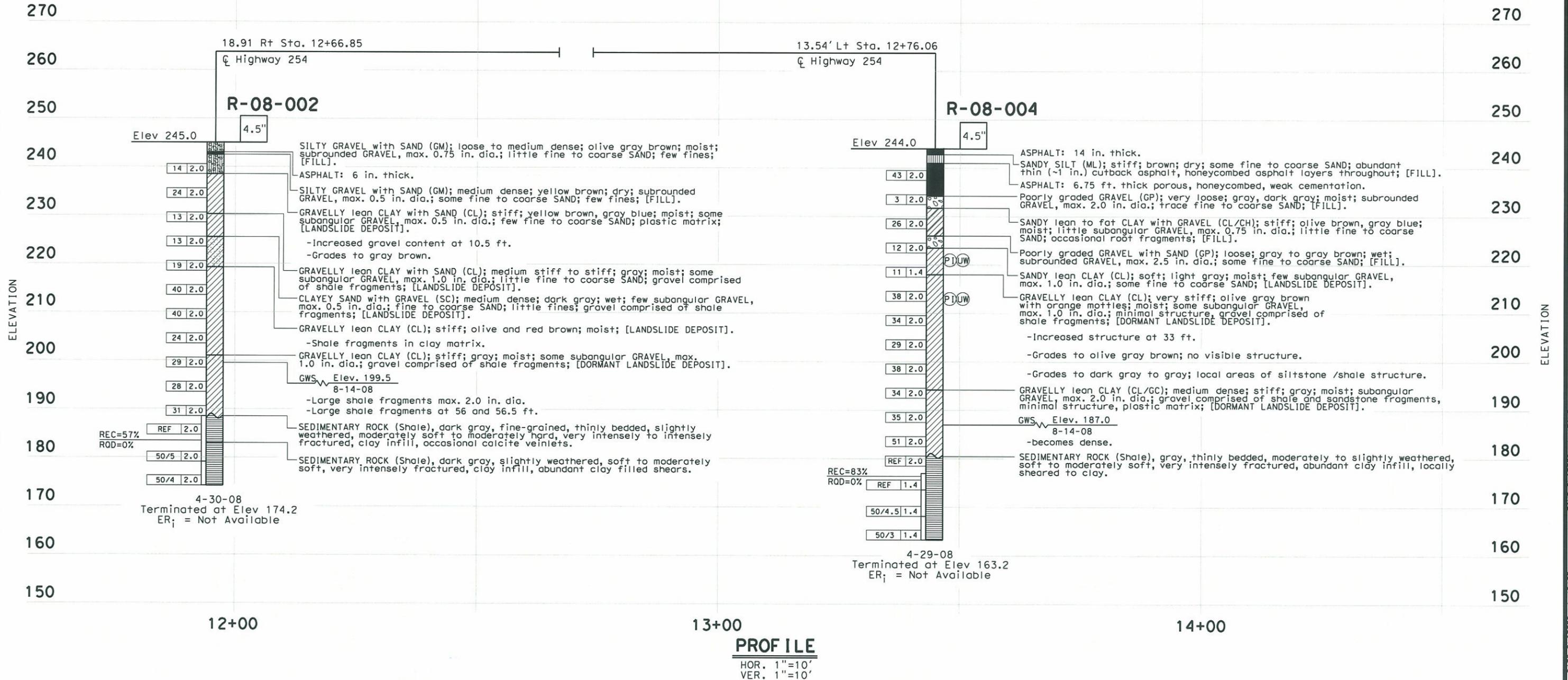
REGISTERED GEOLOGIST DATE 10-9-08

WILLIAM V. MCCORMICK III  
No. 1673  
Exp. 11-30-08  
REGISTERED GEOLOGIST  
CERTIFIED ENGINEERING GEOLOGIST  
STATE OF CALIFORNIA

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FUNCTIONAL SUPERVISOR:	DRAWN BY: A. Sanchez	FIELD INVESTIGATION BY: J. Richmond April 2008	POST MILES	<b>LOG OF TEST BORINGS 2 OF 7</b>
NAME:	CHECKED BY: W. McCormick	PROJECT ENGINEER:	11.1	
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DATE PLOTTED => \$TIME  
USERNAME => \$USER

NOTE: This LOTB sheet was prepared generally in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (June 2007)

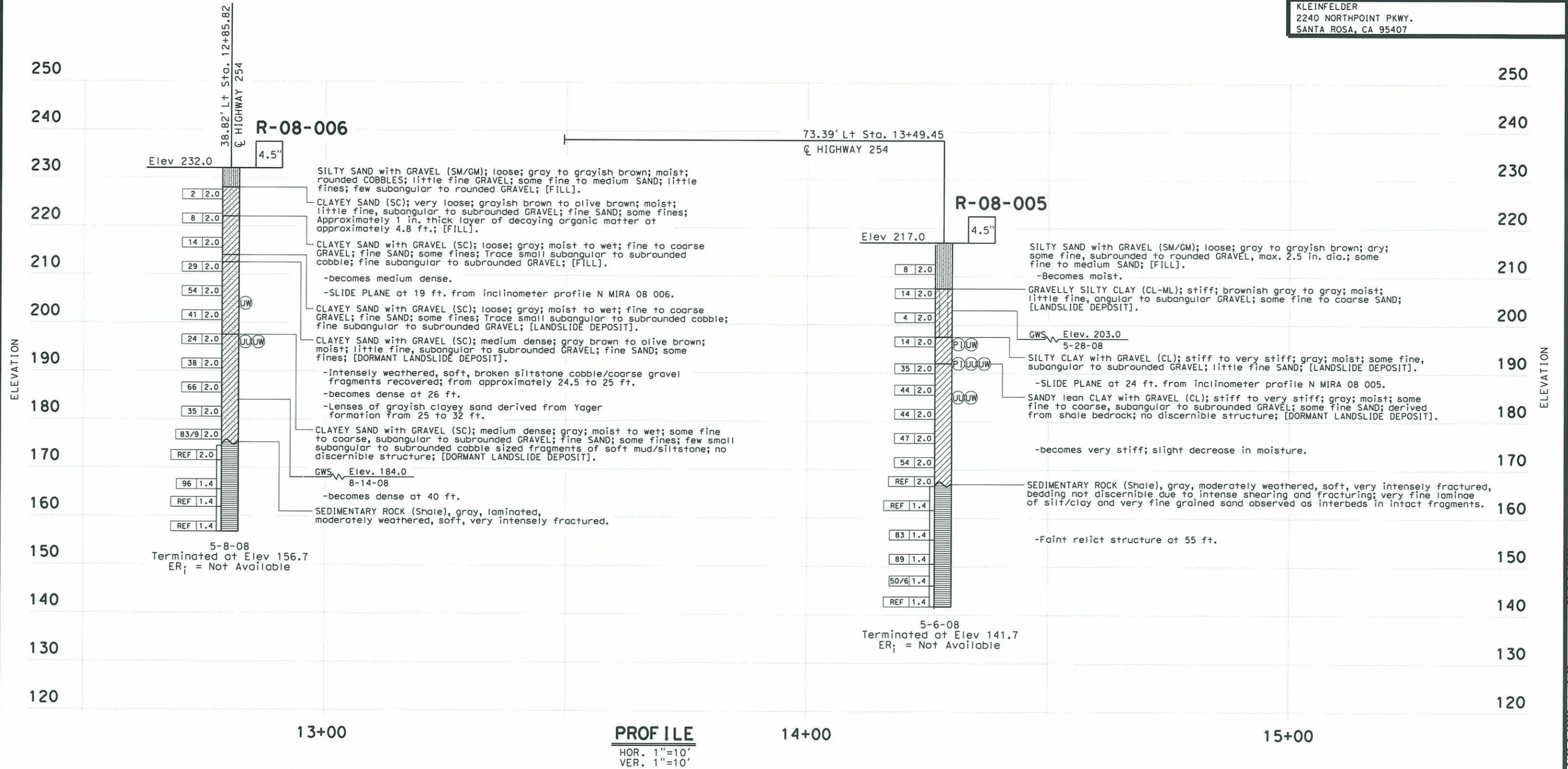
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Q1	Hum	254	11.1		

REGISTERED GEOLOGIST: *William V. McCormick III* DATE: 10-9-08  
 REGISTERED GEOLOGIST: WILLIAM V. McCORMICK III  
 No. 1673  
 Exp. 11-30-08  
 CERTIFIED ENGINEERING GEOLOGIST  
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DESIGN OVERSIGHT ENGINEER:	SIGN OFF DATE:	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO.	HIGHWAY 254 @ PM 11.05
FUNCTIONAL SUPERVISOR:	DRAWN BY: A. Sanchez	FIELD INVESTIGATION BY: C. White May 2008	POST MILES	LOG OF TEST BORINGS 3 OF 7
NAME:	CHECKED BY: W. McCormick	PROJECT ENGINEER:	11.1	
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NOTE: This LOTB sheet was prepared generally in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (June 2007)

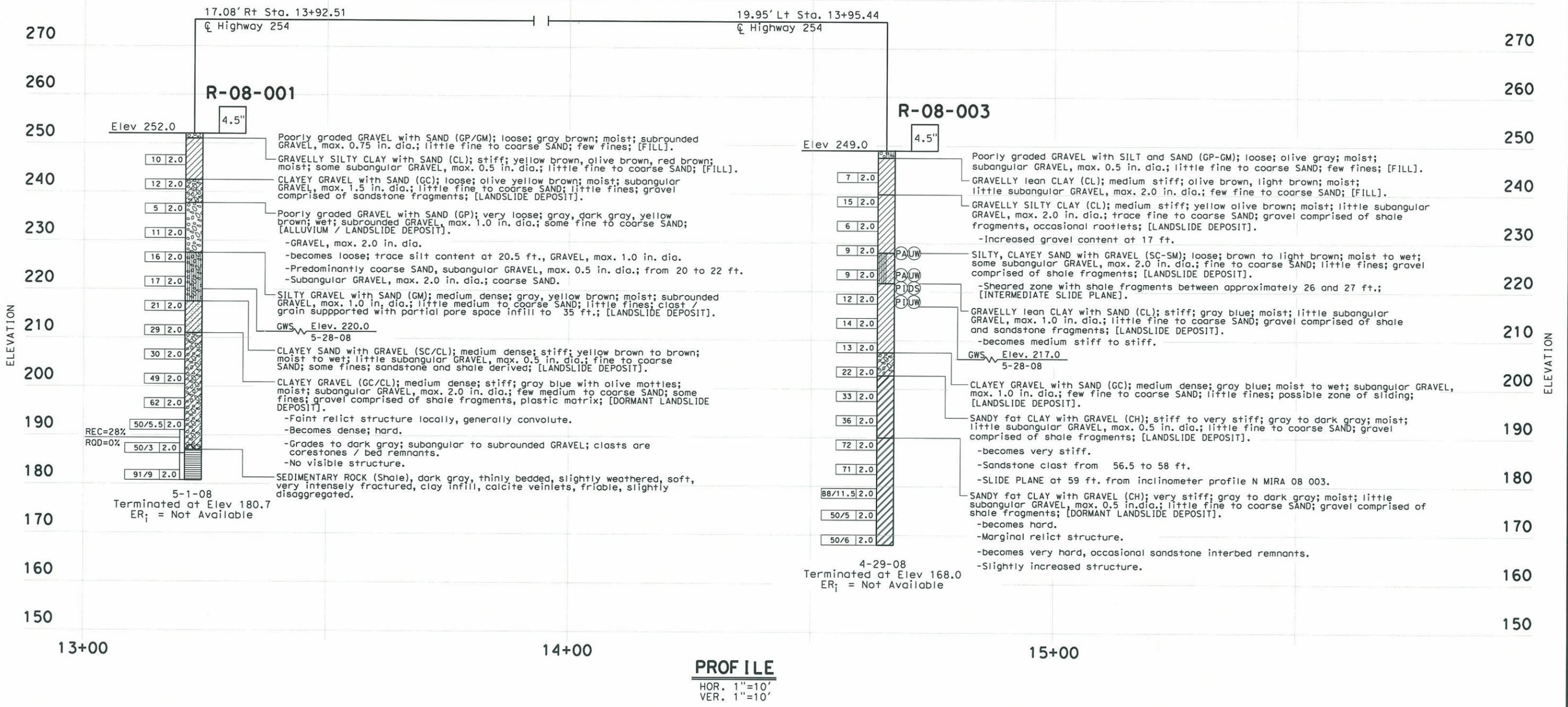
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REGISTERED GEOLOGIST DATE 10-9-08  
 REGISTERED GEOLOGIST DATE 10-9-08  
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 No. 1673  
 Exp. 11-30-08  
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FUNCTIONAL SUPERVISOR	DRAWN BY: A. Sanchez	FIELD INVESTIGATION BY: J. Richmond April, May 2008	POST MILES 11.1	LOG OF TEST BORINGS 4 OF 7
NAME:	CHECKED BY: W. McCormick	PROJECT ENGINEER	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES
065 CIVIL LOG OF TEST BORINGS SHEET	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	CU EA 475301	DATE PLOTTED => 8/10/08	SHEET OF

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Hum	254	11.1		

REGISTERED GEOLOGIST DATE 10-9-08

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### PERCENT CORE RECOVERY (REC) & ROCK QUALITY DESIGNATION (RQD)

$$REC = \frac{\sum \text{Length of the recovered core pieces (inches)}}{\text{Total length of core run (inches)}} \times 100\%$$

$$RQD = \frac{\sum \text{Length of intact core pieces} \geq 4''}{\text{Total length of core run (inches)}} \times 100\%$$

### RELATIVE STRENGTH OF INTACT ROCK

Term	Uniaxial Compressive Strength (PSI)
Extremely Strong	> 30,000
Very Strong	14,500 - 30,000
Strong	7,000 - 14,500
Medium Strong	3,500 - 7,000
Weak	700 - 3,500
Very Weak	150 - 700
Extremely Weak	< 150

### BEDDING SPACING

Description	Thickness / Spacing
Massive	Greater than 10 ft
Very thickly bedded	3 to 10 ft
Thickly bedded	1 to 3 ft
Moderately bedded	3-5/8" to 1 ft
Thinly bedded	1-1/4" to 3-5/8"
Very thinly bedded	3/8" to 1-1/4"
Laminated	Less than 3/8"

### LEGEND OF ROCK MATERIALS

- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

### ROCK HARDNESS

Description	Criteria
Extremely Hard	Specimen cannot be scratched with a pocket knife or sharp pick; can only be chipped with repeated heavy hammer blows.
Very Hard	Specimen cannot be scratched with a pocket knife or sharp pick. Breaks with repeated heavy hammer blows.
Hard	Specimen can be scratched with a pocket knife or sharp pick with difficulty (heavy pressure). Heavy hammer blows required to break specimen.
Moderately Hard	Specimen can be scratched with pocket knife or sharp pick with light or moderate pressure. Core breaks with moderate hammer pressure.
Moderately Soft	Specimen can be grooved 1/6" deep with a pocket knife or sharp pick with moderate or heavy pressure. Breaks with light hammer blow or heavy manual pressure.
Soft	Specimen can be grooved or gouged easily by a pocket knife or sharp pick with light pressure, can be scratched with fingernail. Breaks with light to moderate manual pressure.
Very Soft	Specimen can be readily indented, grooved or gouged with fingernail, or carved with a pocket knife. Breaks with light manual pressure.

### WEATHERING DESCRIPTORS FOR INTACT ROCK

Description	Diagnostic features					General Characteristics
	Chemical Weathering-Discoloration and/or oxidation		Mechanical Weathering-Grain boundary conditions (disaggregation) primarily for granitics and some coarse-grained sediments	Texture and Solutioning		
	Body of Rock	Fracture Surfaces		Texture	Solutioning	
Fresh	No discoloration, not oxidized.	No discoloration or oxidation.	No separation, intact (tight).	No change.	No solutioning.	Hammer rings when crystalline rocks are struck.
Slightly Weathered	Discoloration or oxidation is limited to surface of, or short distance from, fractures; some feldspar crystals are dull.	Minor to complete discoloration or oxidation of most surfaces.	No visible separation, intact (tight).	Preserved.	Minor leaching of some soluble minerals may be noted.	Hammer rings when crystalline rocks are struck. Body of rock not weakened.
Moderately Weathered	Discoloration or oxidation extends from fractures usually throughout; Fe-Mg minerals are "rusty," feldspar crystals are "cloudy."	All fracture surfaces are discolored or oxidized.	Partial separation of boundaries visible.	Generally preserved.	Soluble minerals may be mostly leached.	Hammer does not ring when rock is struck. Body of rock is slightly weakened.
Intensely Weathered	Discoloration or oxidation throughout; all feldspars and Fe-Mg minerals are altered to clay to some extent; or chemical alteration produces in-situ disaggregation, see grain boundary conditions.	All fracture surfaces are discolored or oxidized, surfaces friable.	Partial separation, rock is friable; in semiarid conditions granitics are disaggregated.	Texture altered by chemical disintegration (hydration, argillation).	Leaching of soluble minerals may be complete.	Dull sound when struck with hammer, usually can be broken with moderate to heavy manual pressure or by light hammer blow without reference to planes of weakness such as incipient or hairline fractures, or veinlets. Rock is significantly weakened.
Decomposed	Discolored or oxidized throughout, but resistant minerals such as quartz may be unaltered; all feldspars and Fe-Mg minerals are completely altered to clay.		Complete separation of grain boundaries (disaggregated).	Resembles a soil, partial or complete remnant rock structure may be preserved; leaching of soluble minerals usually complete.		Can be granulated by hand. Resistant minerals such as quartz may be present as "stringers" or "dikes."

Combination descriptors (such as "slightly weathered to fresh") are permissible where equal distribution of both weathering characteristics is present over significant intervals or where characteristics present are "in between" the diagnostic feature. However, combination descriptors should not be used where significant, identifiable zones can be delineated. Only two adjacent descriptors may be combined. "Very intensely weathered" is the combination descriptor for "intensely weathered to decomposed."

### FRACTURE DENSITY

Description	Observed Fracture Density
Unfractured	No fractures.
Very slightly fractured	Lengths greater than 3 feet.
Slightly fractured	Lengths from 1 to 3 feet with few lengths less than 1 foot or greater than 3 feet.
Moderately fractured	Lengths mostly in 4" to 1 foot range with most lengths about 8"
Intensely fractured	Lengths average from 1 to 4" with scattered fragmented intervals with lengths less than 4"
Very intensely fractured	Mostly chips and fragments with a few scattered short core lengths.

Combination descriptors (such as "Very intensely to intensely fractured") are used where equal distribution of both fracture density characteristics is present over a significant interval or exposure, or where characteristics are "in between" the descriptor definitions. Only two adjacent descriptors may be combined.

DESIGN OVERSIGHT ENGINEER:	SIGN OFF DATE:	PREPARED FOR THE <b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	BRIDGE NO.	<b>ROCK LEGEND</b> <b>LOG OF TEST BORINGS 5 of 7</b>
PREPARED BY: A. Sanchez	CHECKED BY: W. McCormick	PROJECT ENGINEER	POST MILE: 11.1	
GS LOTB ROCK LEGEND	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	CU EA 475301	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES

DATE PLOTTED => \$TIME  
USERNAME => \$USER

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Hum	254	11.1		

REGISTERED GEOLOGIST DATE 10-9-08  
 WILLIAM V. MCCORMICK III  
 No. 1673  
 Exp. 11-30-08  
 CERTIFIED ENGINEERING GEOLOGIST  
 STATE OF CALIFORNIA

PLANS APPROVAL DATE \_\_\_\_\_  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

KLEINFELDER  
 2240 NORTHPOINT PKWY.  
 SANTA ROSA, CA 95407

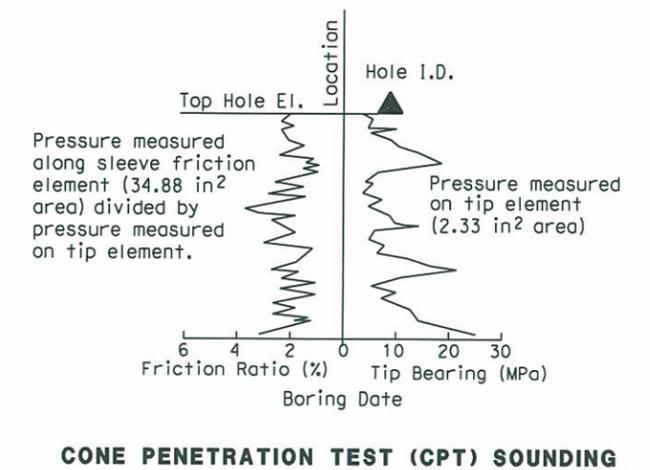
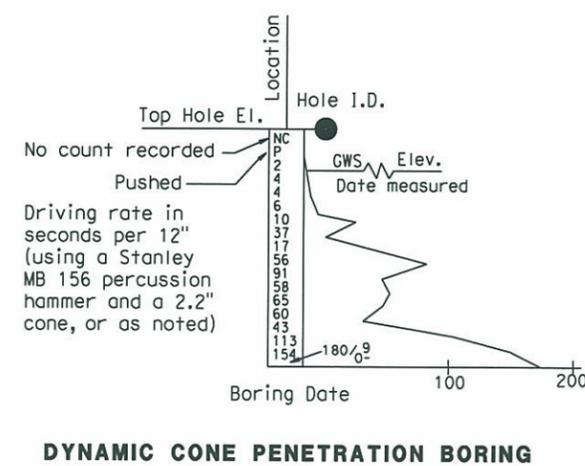
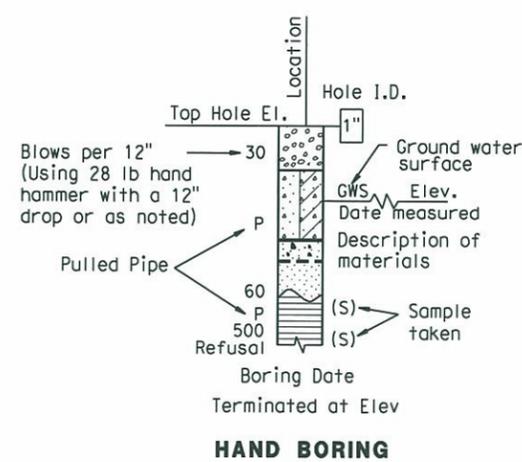
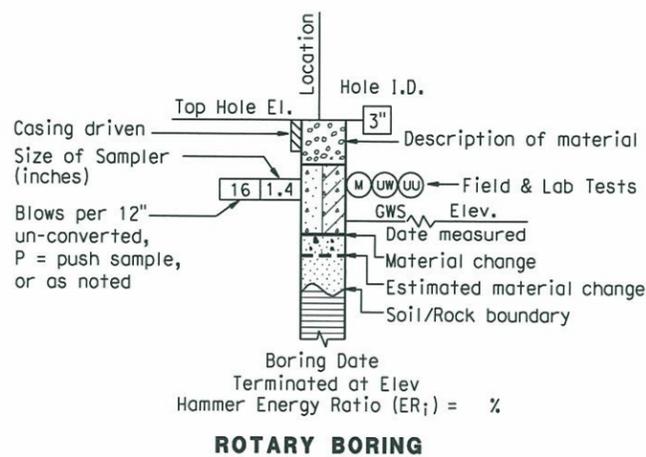
CEMENTATION	
Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

CONSISTENCY OF COHESIVE SOILS				
Description	Unconfined Compressive Strength (tsf)	Pocket Penetrometer Measurement (tsf)	Torvane Measurement (tsf)	Field Approximation
Very Soft	< 0.25	< 0.25	< 0.12	Easily penetrated several inches by fist
Soft	0.25 to 0.50	0.25 to 0.50	0.12 to 0.25	Easily penetrated several inches by thumb
Medium Stiff	0.50 to 1.0	0.50 to 1.0	0.25 to 0.50	Penetrated several inches by thumb with moderate effort
Stiff	1 to 2	1 to 2	0.50 to 1.0	Readily indented by thumb but penetrated only with great effort
Very Stiff	2 to 4	2 to 4	1.0 to 2.0	Readily indented by thumbnail
Hard	> 4.0	> 4.0	> 2.0	Indented by thumbnail with difficulty

BOREHOLE IDENTIFICATION		
Symbol	Hole Type	Description
	A	Auger Boring
	R	Rotary drilled boring
	P	Rotary percussion boring (air)
	R	Rotary drilled diamond core
	HD	Hand driven (1-inch soil tube)
	HA	Hand Auger
	D	Dynamic Cone Penetration Boring
	CPT	Cone Penetration Test (ASTM D 5778-95)
	O	Other

Note: Size in inches.

PLASTICITY OF FINE-GRAINED SOILS	
Description	Criteria
Nonplastic	A 1/8-inch thread cannot be rolled at any water content.
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.



DESIGN OVERSIGHT ENGINEER:

SIGN OFF DATE:

PREPARED BY A. Sanchez  
 CHECKED BY W. McCormick

PREPARED FOR THE  
 STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

PROJECT ENGINEER

BRIDGE NO.

POST MILE

11.1

SOIL LEGEND

LOG OF TEST BORINGS 6 OF 7

GS LOTB SOIL LEGEND

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

0 1 2 3

CU EA 475301

FILE => \$REQUEST

DISREGARD PRINTS BEARING EARLIER REVISION DATES

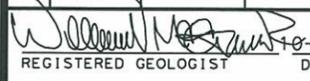
10-9-08

REVISION DATES

SHEET OF

DATE PLOTTED => \$TIME USERNAME => \$USER

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO	TOTAL SHEETS
01	Hum	254	11.1		

  
 REGISTERED GEOLOGIST DATE 10-9-08  
 No. 1673  
 Exp. 11-30-08  
 CERTIFIED ENGINEERING GEOLOGIST  
 STATE OF CALIFORNIA

PLANS APPROVAL DATE \_\_\_\_\_  
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 KLEINFELDER  
 2240 NORTHPOINT PKWY.  
 SANTA ROSA, CA 95407

GROUP SYMBOLS AND NAMES			
Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
	Well-graded GRAVEL		Lean CLAY
	Well-graded GRAVEL with SAND		Lean CLAY with SAND
	Poorly graded GRAVEL		Lean CLAY with GRAVEL
	Poorly graded GRAVEL with SAND		SANDY lean CLAY
	Well-graded GRAVEL with SILT		SANDY lean CLAY with GRAVEL
	Well-graded GRAVEL with SILT and SAND		GRAVELLY lean CLAY
	Well-graded GRAVEL with CLAY (or SILTY CLAY)		GRAVELLY lean CLAY with SAND
	Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		SILTY CLAY
	Poorly graded GRAVEL with SILT		SILTY CLAY with SAND
	Poorly graded GRAVEL with SILT and SAND		SILTY CLAY with GRAVEL
	Poorly graded GRAVEL with CLAY (or SILTY CLAY)		SANDY SILTY CLAY
	Poorly graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		SANDY SILTY CLAY with GRAVEL
	SILTY GRAVEL		GRAVELLY SILTY CLAY
	SILTY GRAVEL with SAND		GRAVELLY SILTY CLAY with SAND
	CLAYEY GRAVEL		SILT
	CLAYEY GRAVEL with SAND		SILT with SAND
	SILTY, CLAYEY GRAVEL		SILT with GRAVEL
	SILTY, CLAYEY GRAVEL with SAND		SANDY SILT
	Well-graded SAND		SANDY SILT with GRAVEL
	Well-graded SAND with GRAVEL		GRAVELLY SILT
	Poorly graded SAND		GRAVELLY SILT with SAND
	Poorly graded SAND with GRAVEL		ORGANIC lean CLAY
	Well-graded SAND with SILT		ORGANIC lean CLAY with SAND
	Well-graded SAND with SILT and GRAVEL		ORGANIC lean CLAY with GRAVEL
	Well-graded SAND with CLAY (or SILTY CLAY)		SANDY ORGANIC lean CLAY
	Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)		SANDY ORGANIC lean CLAY with GRAVEL
	Poorly graded SAND with SILT		GRAVELLY ORGANIC lean CLAY
	Poorly graded SAND with SILT and GRAVEL		GRAVELLY ORGANIC lean CLAY with SAND
	Poorly graded SAND with CLAY (or SILTY CLAY)		ORGANIC SILT
	Poorly graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)		ORGANIC SILT with SAND
	SILTY SAND		ORGANIC SILT with GRAVEL
	SILTY SAND with GRAVEL		SANDY ORGANIC SILT
	CLAYEY SAND		SANDY ORGANIC SILT with GRAVEL
	CLAYEY SAND with GRAVEL		GRAVELLY ORGANIC SILT
	SILTY, CLAYEY SAND		GRAVELLY ORGANIC SILT with SAND
	SILTY, CLAYEY SAND with GRAVEL		ORGANIC fat CLAY
	PEAT		ORGANIC fat CLAY with SAND
	COBBLES		ORGANIC fat CLAY with GRAVEL
	COBBLES and BOULDERS		SANDY ORGANIC fat CLAY
	BOULDERS		SANDY ORGANIC fat CLAY with GRAVEL
			GRAVELLY ORGANIC fat CLAY
			GRAVELLY ORGANIC fat CLAY with SAND

FIELD AND LABORATORY TESTING	
(C)	Consolidation (ASTM D 2435)
(CL)	Collapse Potential (ASTM D 5333)
(CP)	Compaction Curve (CTM 216)
(CR)	Corrosivity Testing (CTM 643, CTM 422, CTM 417)
(CU)	Consolidated Undrained Triaxial (ASTM D 4767)
(DS)	Direct Shear (ASTM D 3080)
(EI)	Expansion Index (ASTM D 4829)
(M)	Moisture Content (ASTM D 2216)
(OC)	Organic Content-% (ASTM D 2974)
(P)	Permeability (CTM 220)
(PA)	Particle Size Analysis (ASTM D 422)
(PI)	Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
(PL)	Point Load Index (ASTM D 5731)
(PM)	Pressure Meter
(PP)	Pocket Penetrometer
(R)	R-Value (CTM 301)
(SE)	Sand Equivalent (CTM 217)
(SG)	Specific Gravity (AASHTO T 100)
(SL)	Shrinkage Limit (ASTM D 427)
(SW)	Swell Potential (ASTM D 4546)
(TV)	Pocket Torvane
(UC)	Unconfined Compression-Soil (ASTM D 2166) Unconfined Compression-Rock (ASTM D 2938)
(UU)	Unconsolidated Undrained Triaxial (ASTM D 2850)
(UW)	Unit Weight (ASTM D 4767)
(VS)	Vane Shear (AASHTO T 223)

APPARENT DENSITY OF COHESIONLESS SOILS	
Description	SPT N <sub>60</sub> (Blows / 12 inches)
Very loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

MOISTURE	
Description	Criteria
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

PERCENT OR PROPORTION OF SOILS	
Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5 to 10%
Little	15 to 25%
Some	30 to 45%
Mostly	50 to 100%

PARTICLE SIZE		
Description	Size	
Boulder	> 12"	
Cobble	3" to 12"	
Gravel	Coarse	3/4" to 3"
	Fine	No. 4 to 3/4"
Sand	Coarse	No. 10 to No. 4
	Medium	No. 40 to No. 10
	Fine	No. 200 to No. 40

DESIGN OVERSIGHT ENGINEER:	SIGN OFF DATE:	PREPARED FOR THE <b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	BRIDGE NO.:	<b>SOIL LEGEND</b>
PREPARED BY: A. Sanchez	CHECKED BY: W. McCormick	PROJECT ENGINEER:	POST MILE: 11.1	
CS LOTB SOIL LEGEND	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	CU EA 475301	DISREGARD PRINTS BEARING EARLIER REVISION DATES	LOG OF TEST BORINGS 7 of 7
	0 1 2 3	FILE => \$REQUEST	REVISION DATES	SHEET OF

DATE PLOTTED => \$DATE  
USERNAME => \$USER

---

# ***APPENDIX B***

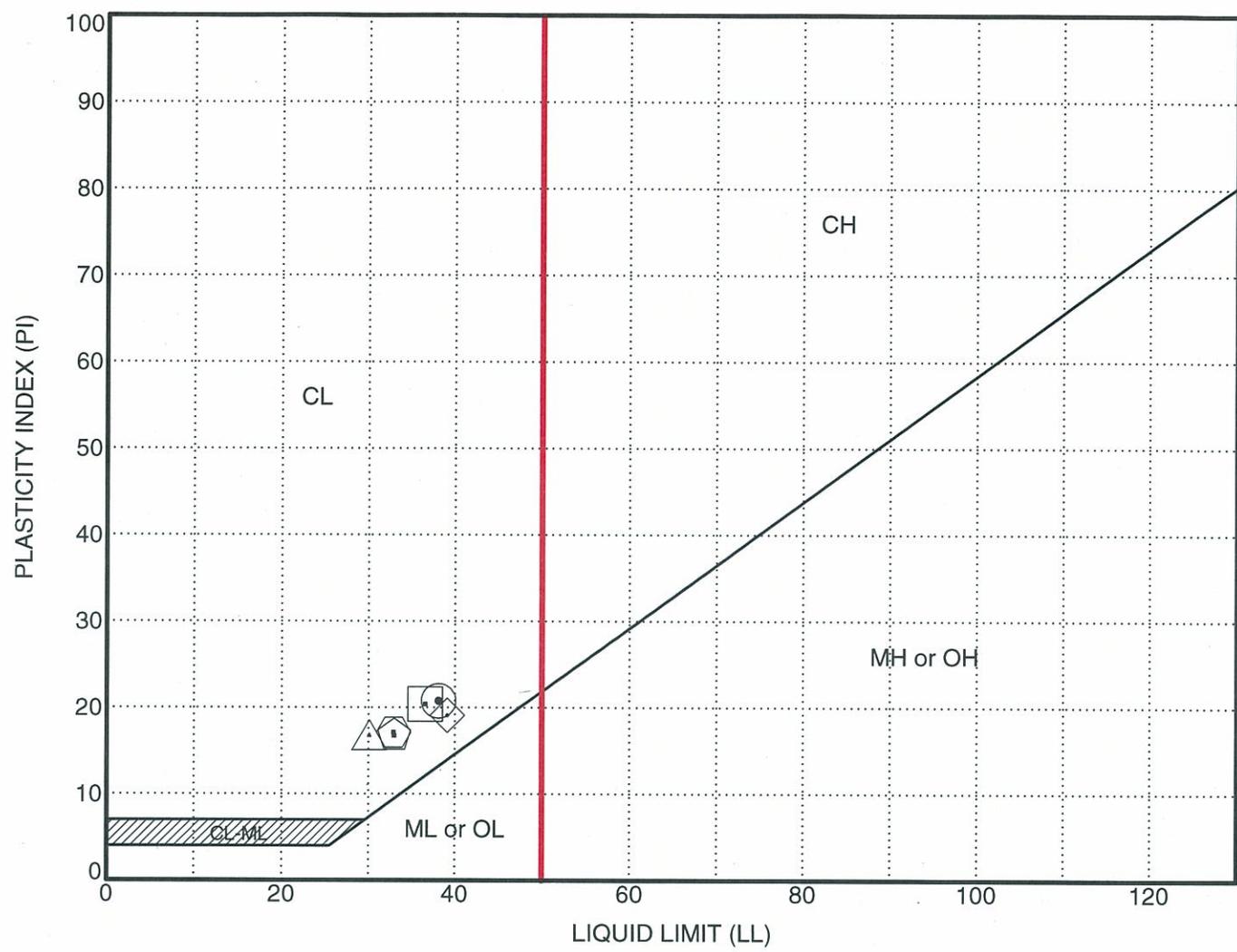
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Lab Test Summary  
**Highway 254 PM 11.1 Job # 93276**  
 EA # 01-475301

Soil/Rock Type	Boring	Sample #	Depth (ft)	UU (psf)	UU (tsf)	Confining Pressure (psf)	Dry density (pcf)	Moisture content (%)	Total density (pcf)	PI	LL	-200	Direct Shear $\Phi, C$ (psf)
LS (SC-SM)	R-08-003	S04-1	21				122	12	137			25	
LS (SC-SM)	R-08-003	S05-1	26				121	12	136			32	
LS (CL)	R-08-003	CORE 27	27							21	38		
LS (CL)	R-08-003	CORE 31	31				113	18	133	20	37		
LS (CL)	R-08-004	CORE 23	23				132	13	149	17	30		
DORM (CL)	R-08-004	S06-1	31				128	12	143	19	39		
LS (CL)	R-08-005	CORE 21	21				129	12	145	17	33		
DORM (CL)	R-08-005	CORE 24.5	24.5	2464	1.2	1498	131	12	146	17	33		
DORM (CL)	R-08-005	CORE 32	32	2157	1.1	1498	131	11	146				
LS (SC)	R-08-006	CORE 28	28				117	16	136				
DORM (SC)	R-08-006	CORE 36	36	2003	1.0	1498	138	13	156				

UU Undrained Unconsolidated Triaxial  
 tsf tons per square foot  
 PI Plasticity Index  
 LL Liquid Limit  
 -200 Percent Passing 200 Sieve  
 LS Landslide Deposit  
 DORM Dormant  
 $\Phi$  Friction Angle  
 C Cohesion

Data Template: PI - KLEINFELDER SANTA ROSA 5-8-08 .GDT - 10/23/08 09:36 - U:\NEW GINT PROJECTS\93276 CALTRANS MULTIPLE JOBS\HUM-254-11 LAB.GPJ



SAMPLE SOURCE	CLASSIFICATION	LIQUID LIMIT (%)	PLASTIC LIMIT (%)	PLASTICITY INDEX (%)	% PASSING #200 SIEVE
⊙ R-08-003 @ 27.0	GRAVELY lean CLAY with SAND (CL)	38	17	21	
□ R-08-003 @ 31.0	GRAVELY lean CLAY with SAND (CL)	37	16	21	
△ R-08-004 @ 23.0	SANDY lean CLAY (CL)	30	13	17	
◇ R-08-004 @ 31.0	GRAVELY lean CLAY (CL)	39	20	19	
⊙ R-08-005 @ 21.0	SILTY lean CLAY with GRAVEL (CL)	33	16	17	
⊙ R-08-005 @ 24.5	SANDY lean CLAY with GRAVEL (CL)	33	16	17	



PROJECT NUMBER **93276**

DATE **10/23/2008**

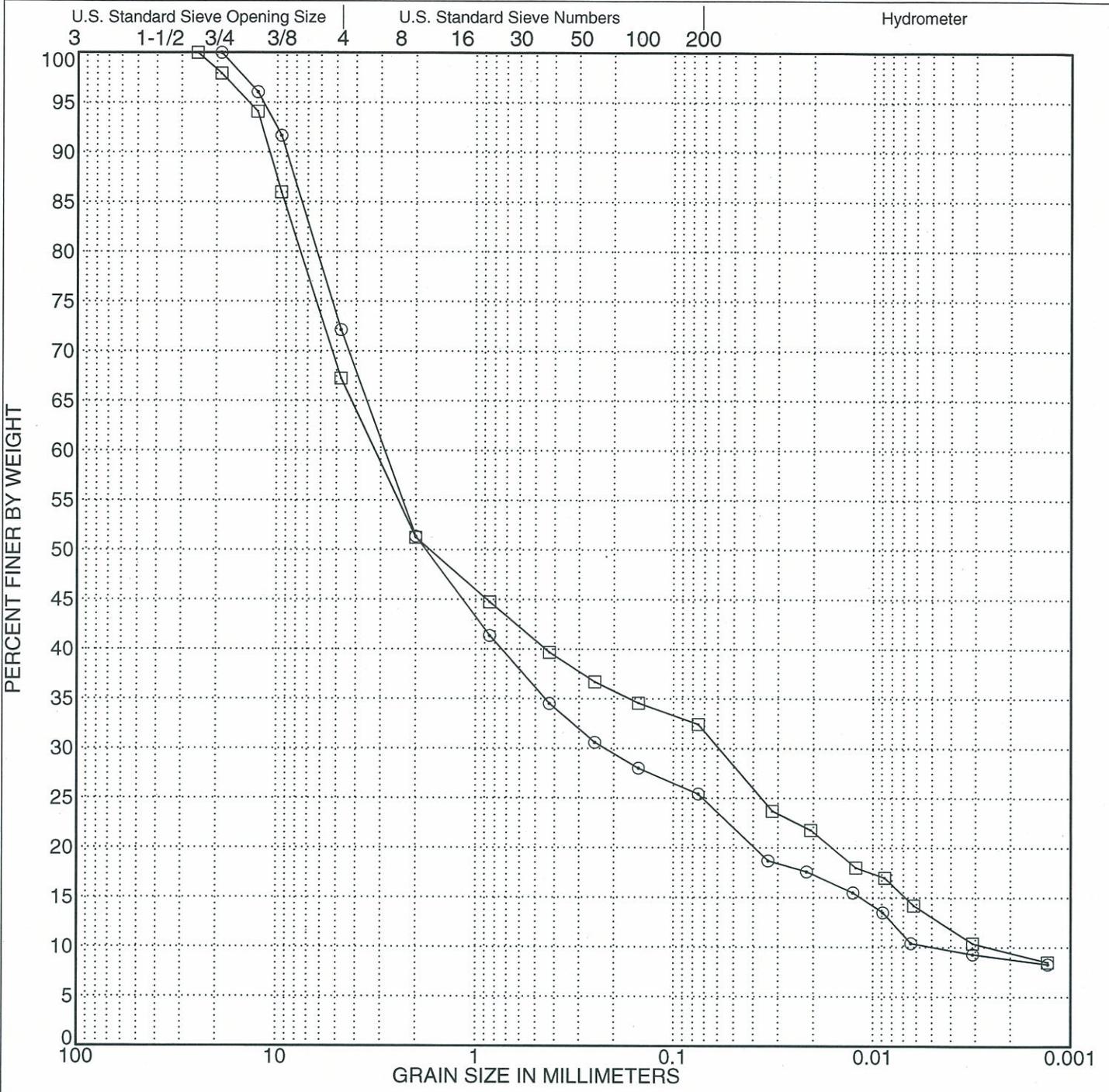
**ATTERBERG LIMITS**

**Highway 254 PM 11  
01-HUM-254-11  
EA # 01-475301**

PLATE

**B-1**

Data Template: SA - KLEINFELDER SANTA ROSA 5-8-08.GDT - 10/23/08 09:37 - U:\NEW GINT PROJECTS\93276 CALTRANS MULTIPLE JOBS\HUM 254 PM 11\01-HUM-254-11 LAB.GPJ

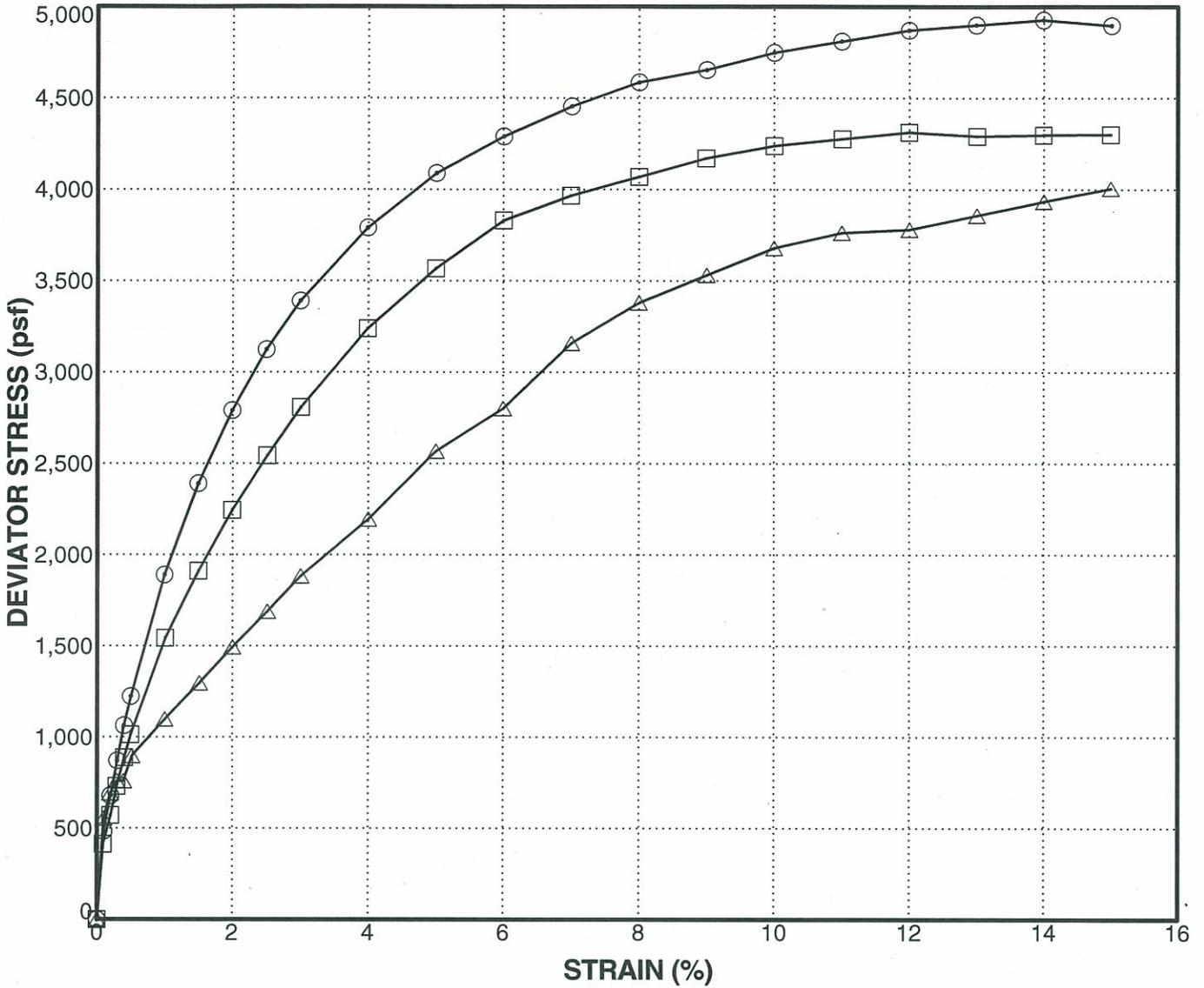


Cobbles	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SYMBOL	SAMPLE SOURCE	CLASSIFICATION
○	R-08-003 @ 21.0'	SILTY, CLAYEY SAND with GRAVEL (SC-SM)
□	R-08-003 @ 26.0'	SILTY, CLAYEY SAND with GRAVEL (SC-SM)

	<b>PARTICLE SIZE ANALYSIS</b>		PLATE
	<b>Highway 254 PM 11</b> <b>01-HUM-254-11</b> <b>EA # 01-475301</b>		<b>B-2</b>
PROJECT NUMBER <b>93276</b>	DATE <b>10/23/2008</b>		

Data Template: NEW TXUU - KLEINFELDER SANTA ROSA 5-8-08 .GDT - 10/23/08 09:37 - U:\NEW GINT PROJECTS\93276 CALTRANS MULTIPLE JOBS\HUM 254 PM 11\01-HUM-254-11 LAB.GPJ



Sample Source	Classification	Type of Test	Confinement Pressure (psf)	Shear Strength (psf)	Strain (%)	Dry Density (pcf)	Moisture Content (%)
⊙ R-08-005 @ 24.5'	SANDY lean CLAY with GRAVEL (CL)	TXUU	1498	2464	14	131	11.5
□ R-08-005 @ 32.0'	SANDY lean CLAY with GRAVEL (CL)	TXUU	1498	2157	12	131	11.1
△ R-08-006 @ 36.0'	CLAYEY SAND with Gravel (SC)	TXUU	1498	2003	15	138	13.1

UC = Unconfined Compression

TX/UU = Unconsolidated Undrained Triaxial



PROJECT NUMBER 93276

DATE 10/23/2008

**STRENGTH TEST DATA**

Highway 254 PM 11  
01-HUM-254-11  
EA # 01-475301

PLATE

**B-3**

# Laboratory Test Results

**Project Name:** Hwy 254 PM 11.1

**Project Number:** 93276

**Boring Number:** R-08-003

**Sample ID:** Core 27

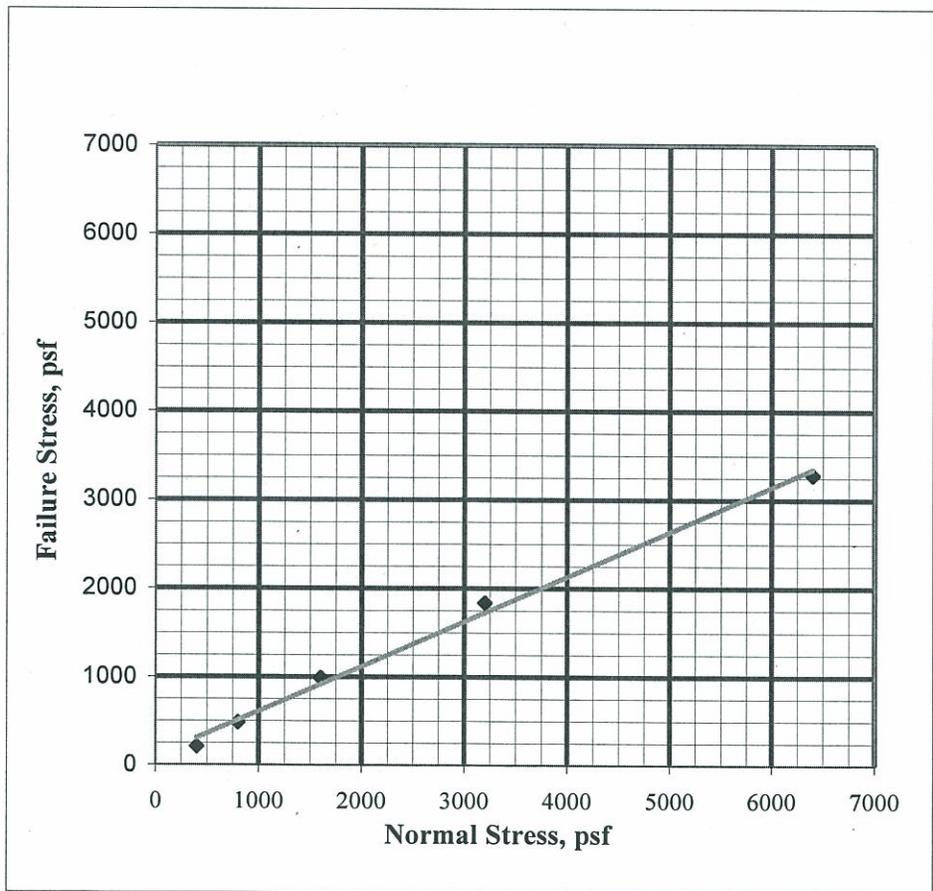
**Sample Depth:** 27'

**Material Description:** Clay (Landslide Deposit)

**Date Tested:** 6/17/2008

## Direct Shear Test (ASTM D 3080)

	Load 1	Load 2	Load 3	Load 4	Load 5
Normal Stress Applied (psf):	400	800	1600	3200	6400
Maximum Shear Stress (psf):	206.6	482.0	986.9	1836.0	3281.9
Initial Moisture:	10.88	10.96	11.94	11.64	11.94
Initial Dry Density (pcf):	107.28	104.63	100.10	100.84	99.37
Final Moisture:	21.40	20.50	18.50	22.41	15.63
Final Dry Density (pcf):	98.06	97.07	95.34	92.04	96.93



$\Phi = 26.9^\circ$   
 $C = 100$  psf



**DIRECT SHEAR**

PLATE

PROJECT NUMBER 93276 DATE June 2008

**Highway 254 PM 11**  
**EA # 01-475301**

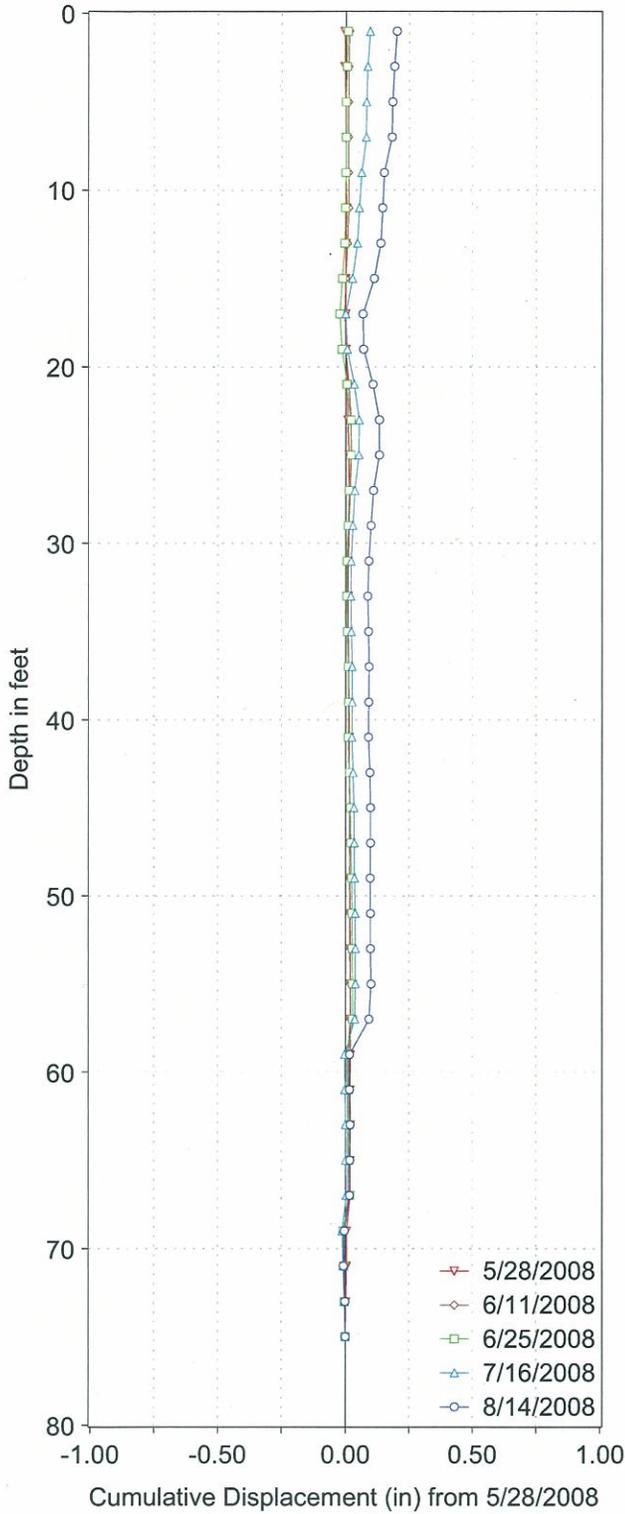
**B-4**

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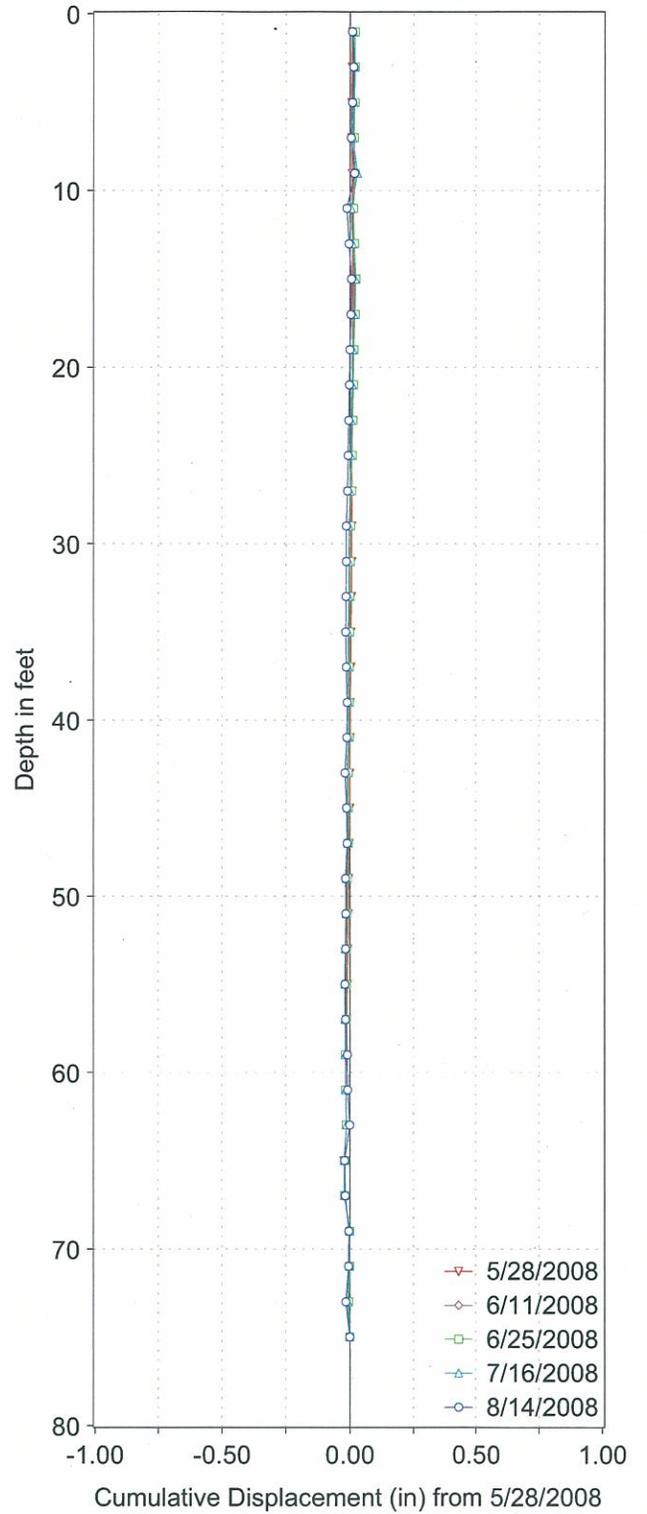
# ***APPENDIX C***

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N MIRA 08 003, A-Axis



N MIRA 08 003, B-Axis

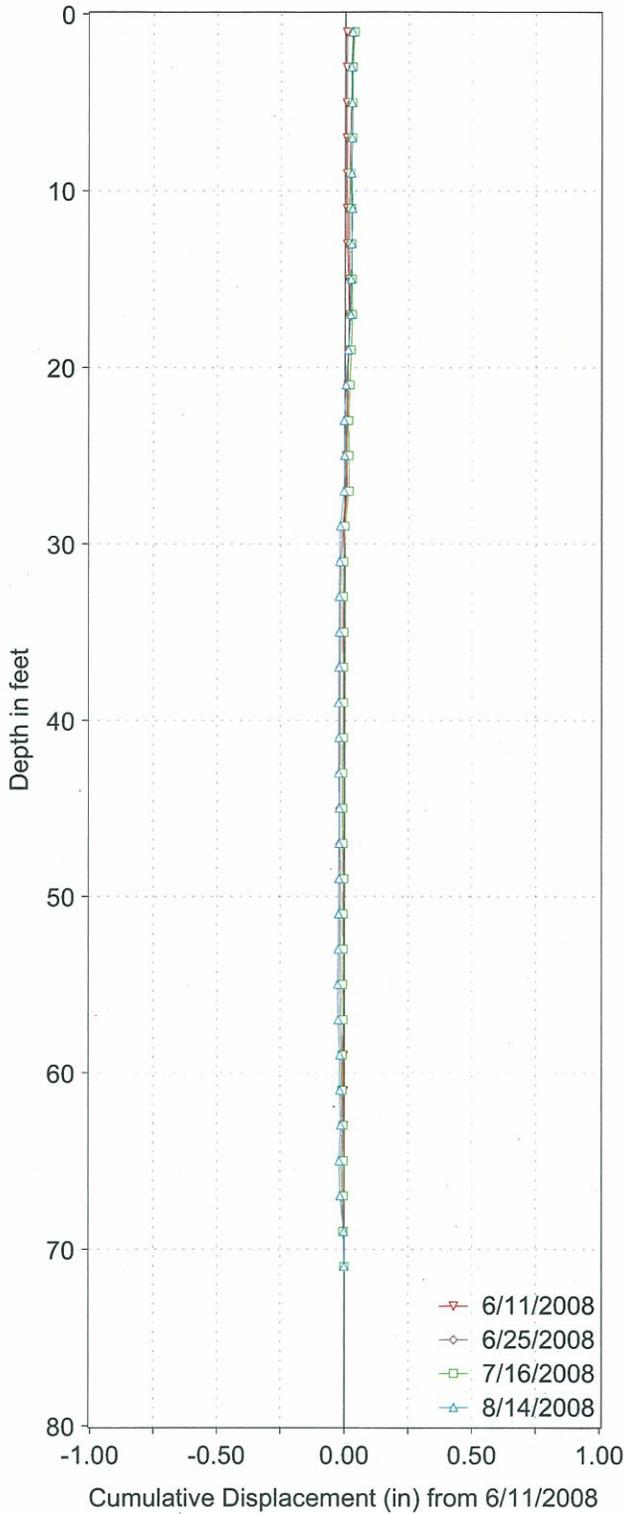


**INCLINOMETER MONITORING RESULTS**

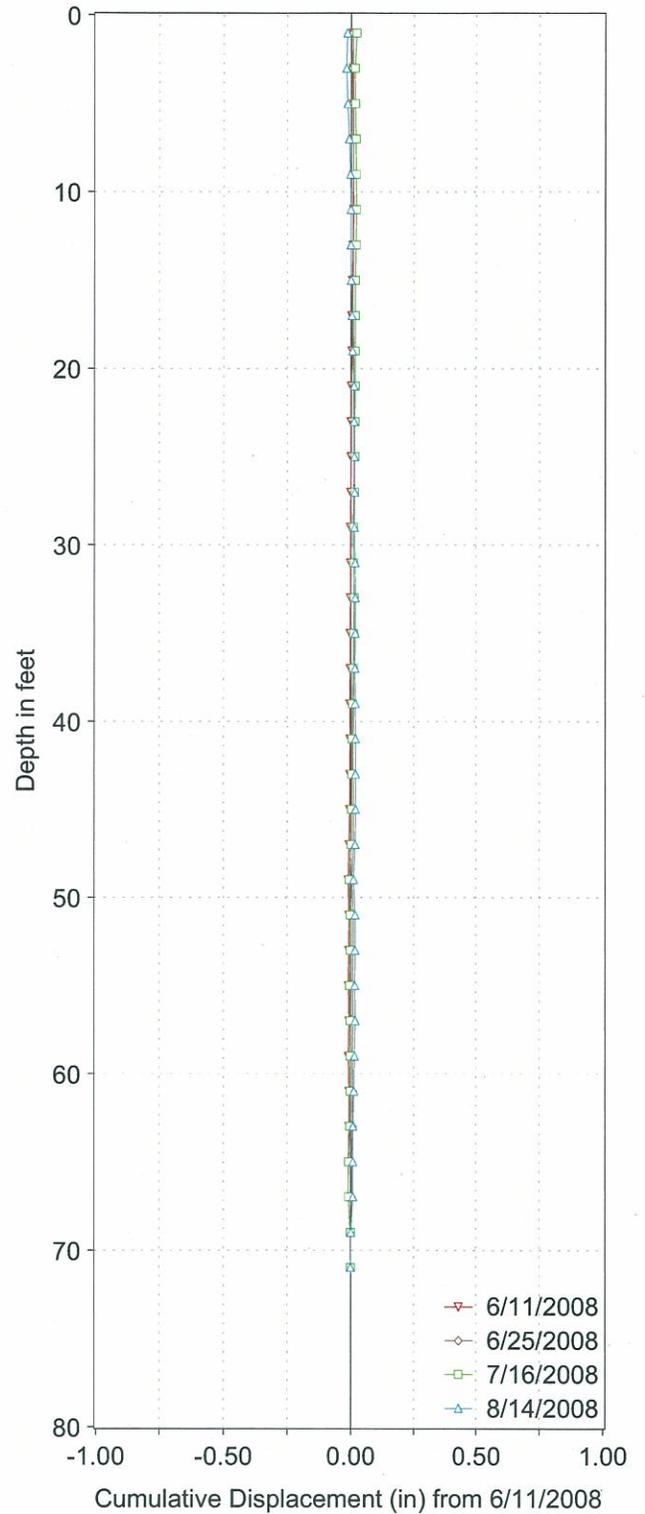
01-HUM-254-PM 11.05  
 Site near Miranda, Slipouts  
 E.A. No.: 01-475301

Depth of Incliner Casing: 75 feet  
 Ao Direction: ° (Magnetic North)  
 Location (WGS-84) : N/A

N MIRA 08-004, A-Axis



N MIRA 08-004, B-Axis

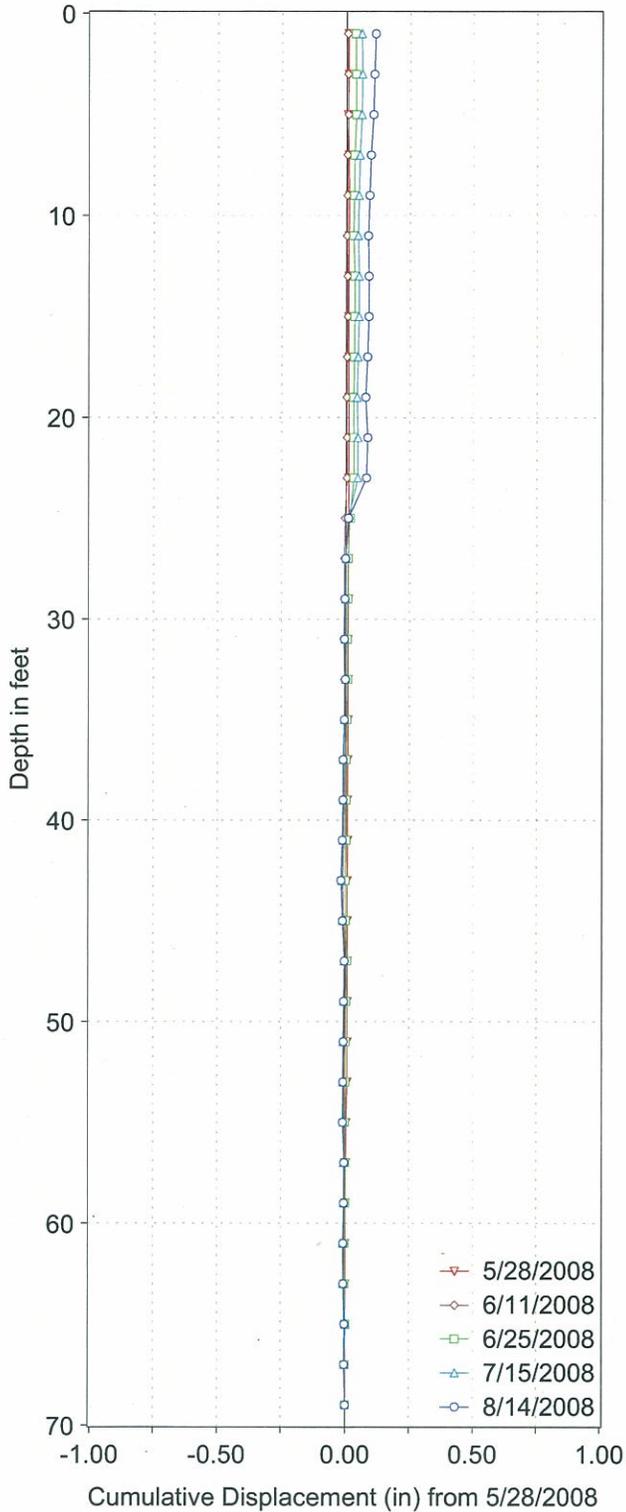


**INCLINOMETER MONITORING RESULTS**

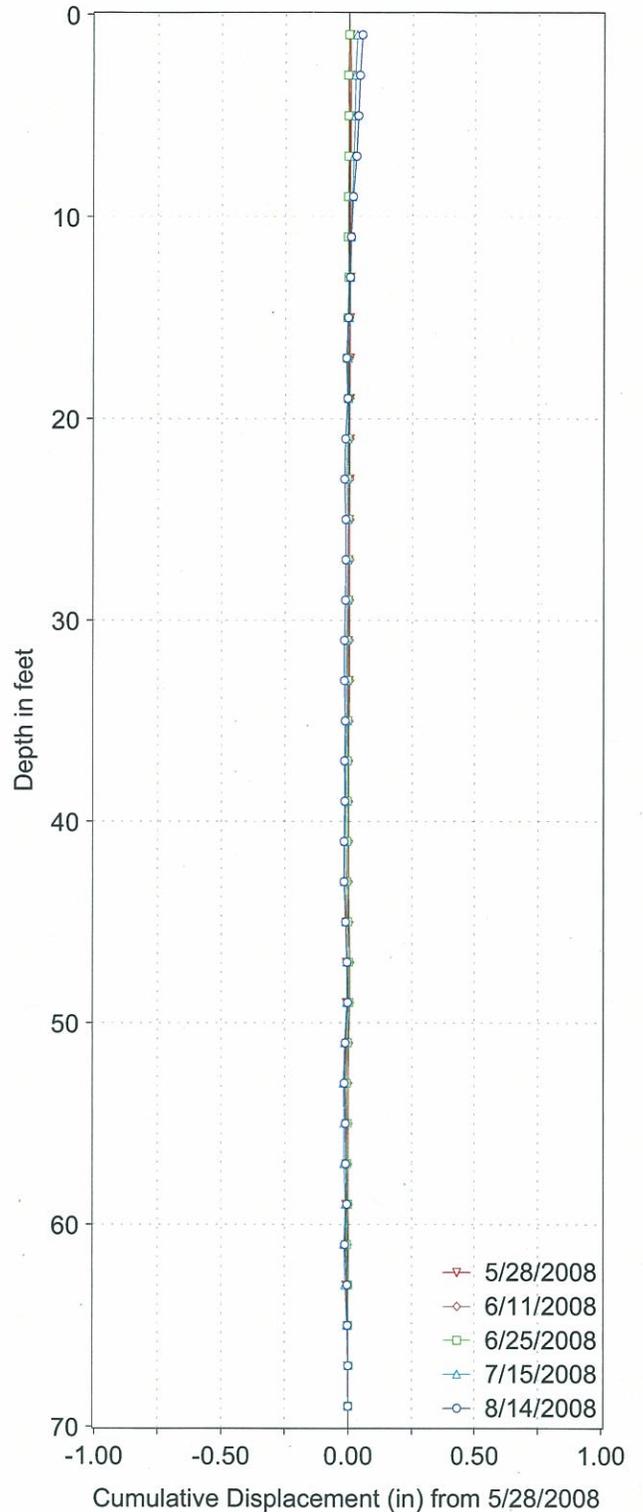
01-HUM-254-PM 11.05  
 Site near Miranda, Slipouts  
 E.A. No.: 01-475301

Depth of Incliner Casing: 71 feet  
 Ao Direction: ° (Magnetic North)  
 Location (WGS-84) : N/A

N MIRA 08 005, A-Axis



N MIRA 08 005, B-Axis

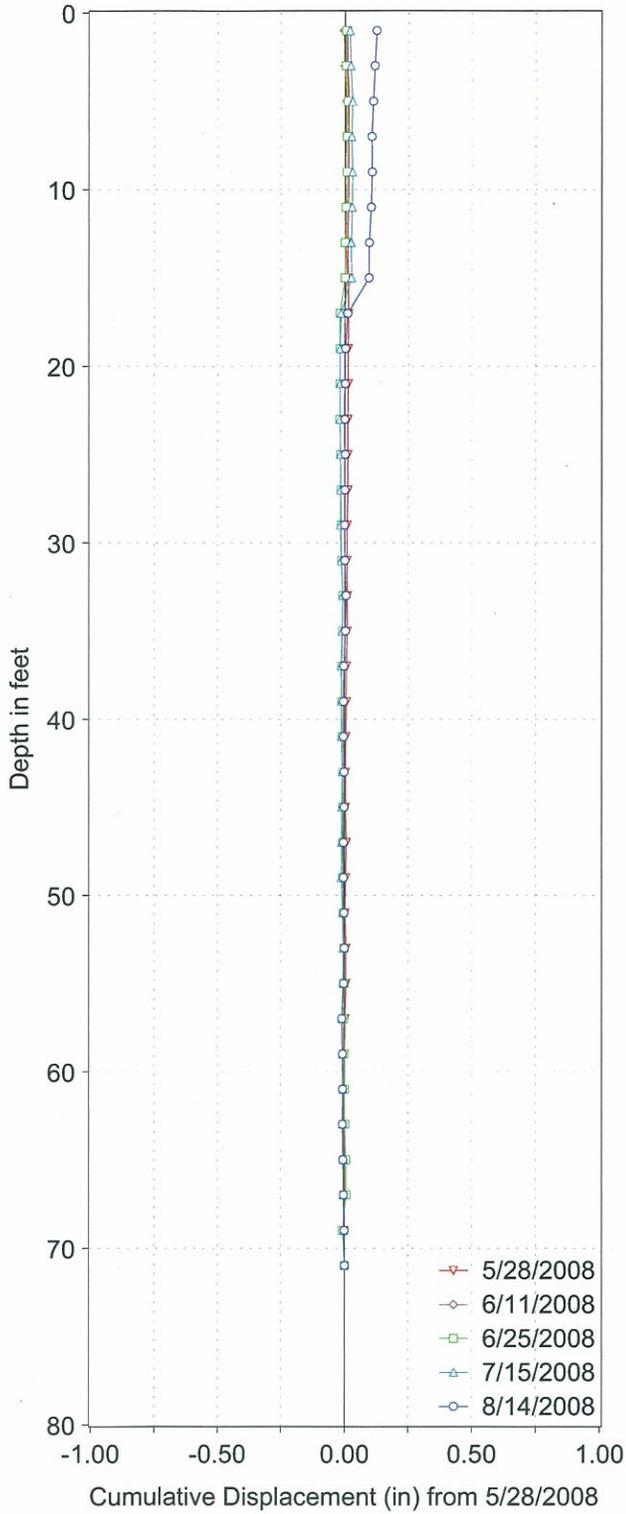


**INCLINOMETER MONITORING RESULTS**

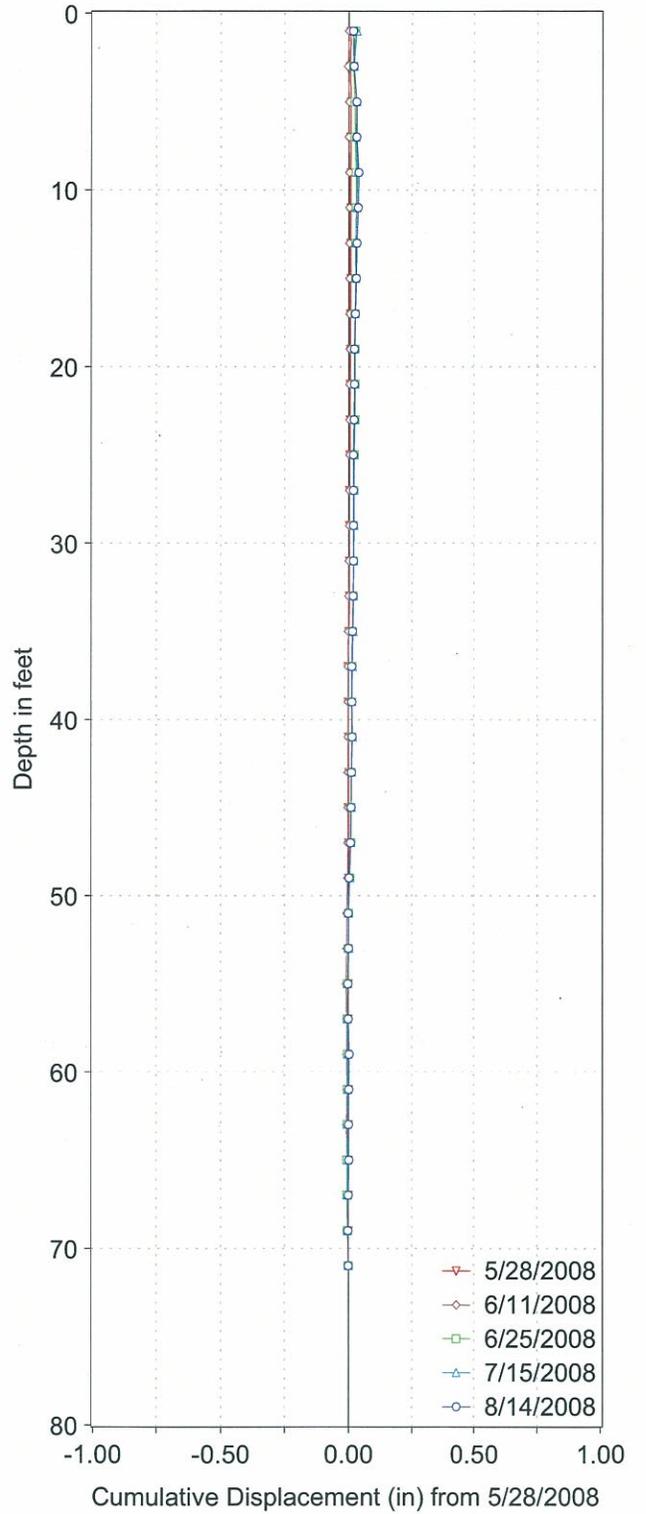
01-HUM-254-PM 11.05  
 Site near Miranda, Slipouts  
 E.A. No.: 01-475301

Depth of Incliner Casing: 69 feet  
 Ao Direction: ° (Magnetic North)  
 Location (WGS-84) : N/A

N MIRA 08 006, A-Axis



N MIRA 08 006, B-Axis



**INCLINOMETER MONITORING RESULTS**  
 01-HUM-254-PM 11.05  
 Site near Miranda, Slipouts  
 E.A. No.: 01-475301

Depth of Inclinometer Casing: 71 feet  
 Ao Direction: ° (Magnetic North)  
 Location (WGS-84) : N/A

U.S. Department of Transportation Federal Highway Administration - California Division Damage Assessment Form (DAF) - Title 23	Report No. <u>CSC-CT01-198-0</u> Sheet No. 1 of <u>4</u> Disaster No. CA <u>06-1</u>
--	--

Applicant: <u>CALTRANS</u>	County: <u>HUMBOLDT</u>	Inspection Date (mm/dd/yy): <u>01/09/06</u>
----------------------------	-------------------------	---

Location of Damage: <u>Per Site or Per Mile (circle one)</u> Name of Road/Bridge: <u>HUM 254</u> Begin <u>11.00</u> End <u>11.09</u> PM Total Feet <u>450</u>	Federal-Aid Highway? <input checked="" type="checkbox"/> Yes (if no, ineligible for ER) Map No. <u>2E111</u>
---	--

Caltrans Work Order No(s): _____ Road/Bridge Data: Bridge No. _____ Type _____ Traveled Way: Width <u>25'</u> Type (circle one) <u>PCC/AC/Gravel</u> Shoulder: Width <u>3'</u> Type (circle one) <u>PCC/AC/Gravel</u>	Forest Highway System? <input type="checkbox"/> Yes (Possible ERFO) Hwy. No. _____ State/Local Route No. <u>254</u>
--	--

Description of Damage: <u>ROADWAY SLOPE &amp; SETTLEMENT HAS CAUSED CONCRETE SYSTEM FAILURE &amp; ADDITIONAL RDWY PRISM FAILURE</u>	ADT (Existing) <u>1000</u> Photos Roll /Disk # _____ Picture # _____
---	--

**COST ESTIMATE**

Type of Repair	Description of Work	Summary Cost
Emergency Opening <input checked="" type="checkbox"/> EMERGENCY OPENING (EO) TO DATE <input type="checkbox"/> State Forces <input type="checkbox"/> Local Forces <input type="checkbox"/> Contract	<u>TEMP FILL &amp; ASPHALT CONCRETE PROVIDE TRAFFIC CONTROL</u>	<u>10,000.00</u>
<input type="checkbox"/> EMERGENCY OPENING (EO) WORK REMAINING <input type="checkbox"/> State Forces <input type="checkbox"/> Local Forces <input type="checkbox"/> Contract	<u>- NONE -</u>	<u>-</u>

Subtotal Emergency Opening	\$ <u>10,000.00</u>
----------------------------	---------------------

Permanent Restoration	PERMANENT RESTORATION (PR) Recommended Method of Work: <input type="checkbox"/> State Forces <input type="checkbox"/> Local Forces <input checked="" type="checkbox"/> Contract <u>WALL</u>	<u>STABILIZE SCOPE &amp; RECONSTRUCT ROADWAY; DE-WATER VIA DEEP UNDERDRAIN SYSTEM; PLACE LW FILL &amp; ROCK BUTRESS</u> <u>3,109,000</u>
-----------------------	--	---

<b>NOTE: PRIOR AUTHORIZATION (APPROVED E-76) IS REQUIRED TO PROCEED WITH PERMANENT RESTORATION</b>	Subtotal Permanent Restoration \$ <u>3,109,000</u>
--	--

Environmental Clearance: <u>EO</u> <u>PR</u> Categorical Exclusion _____ Further Environmental Study _____ EO Clearance signature/date: _____	Environmental clearance is conducted through normal Fed.-aid project procedures.	Preliminary Engineering (10% of PR) \$ <u>310,900.00</u> Construction Engineering (15% of PR) \$ <u>466,350.00</u> Right-of-Way \$ <u>100,000</u>
--	--	---

Stewardship: <input checked="" type="checkbox"/> State Authorized (E) <input type="checkbox"/> Full Oversight (N)	TOTAL ESTIMATED COST (EO+PR+PE+CE+R/W) \$ <u>3,996,250.00</u>
--	---

Recommendation: <input checked="" type="checkbox"/> Eligible <input type="checkbox"/> Ineligible	FHWA Engineer* <u>Charles Chen</u>	Date <u>7/20/06</u>
Concurrence: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	State Engineer <u>Sebastian Cohen</u>	Date <u>1-9-06</u>
Concurrence: <input type="checkbox"/> Yes <input type="checkbox"/> No	Local Agency Engineer	Date

Original: Caltrans District Copies: FHWA, Division of Local Assistance (local roads), Federal Resources (state hwy), HA23 Coordinator. (state hwy)  
 \*Write "N/A" in FHWA signature block if the project has no Federal ER funding (state-only emergency) or Federal ER funding (delegated down to the State).

U.S. Department of Transportation  
 Federal Highway Administration  
 California Division  
 Damage Assessment Form (DAF)  
 Title 23, Federal-Aid Highways

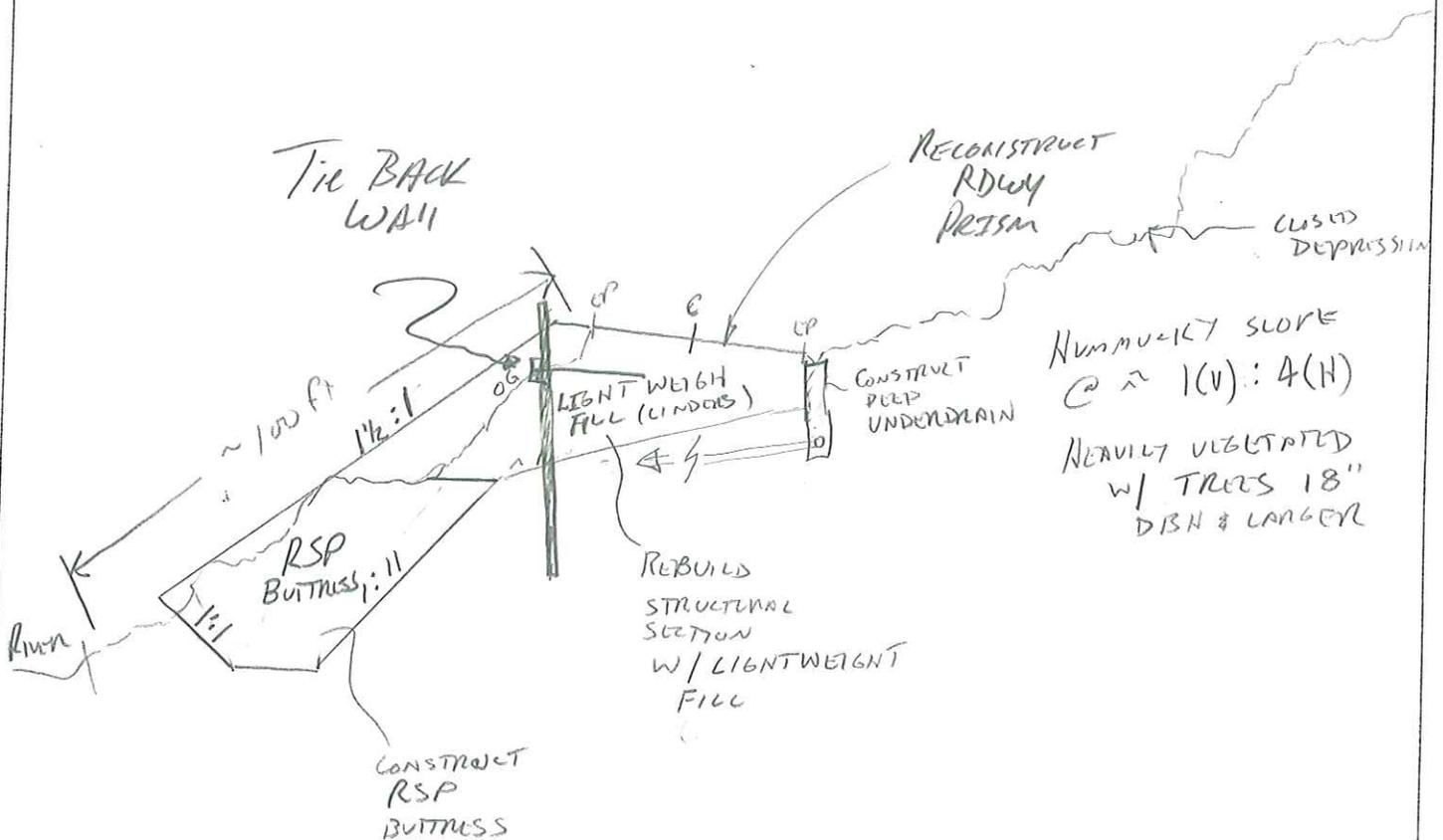
Report No. CSC-CT01-198-9  
 Sheet No. 2 of 4  
 Applicant  
CALTRANS

Quantity	Unit	Labor, Materials, and Equipment	Unit Price	Cost
1	LS	WPCP / SWPPP	10 000	10 000
1	LS	TRAFFIC CONTROL	125 000	125 000
1	LS	EROSION CONTROL	30,000	30 000
1000	CY	ROADWAY EXCAVATION	45	45 000
10000	CY	RSP (1T, METHOD A)	200	1 500,000
200	CY	CLASS II AGG BASE	80	16,000
200	TON	ASPHALT CONCRETE (TYPE A)	300	60 000
1	LS	STRIPING	3000	3 000
1	LS	CLEAR & GRUB	10,000	10,000
1	LS	REPLACE CULVERT(S)	50,000	50,000
1	LS	DEEP (12' min) UNDERDRAIN	40,000	40,000
2000	cy	LIGHT WEIGHT FILL	100	200,000
1	LS	MOBILIZATION	20 000	20 000
1	LS	TIE BACK WALL (200#)	2.0mil	2,000,000.00
				\$ 3,109,000
40				

Sketches and/or Narrative

No SCALE

NUM 254 PM 11.00-11.09 X-SECTION



PROFILE VIEW

Miscellaneous FHWA Approvals

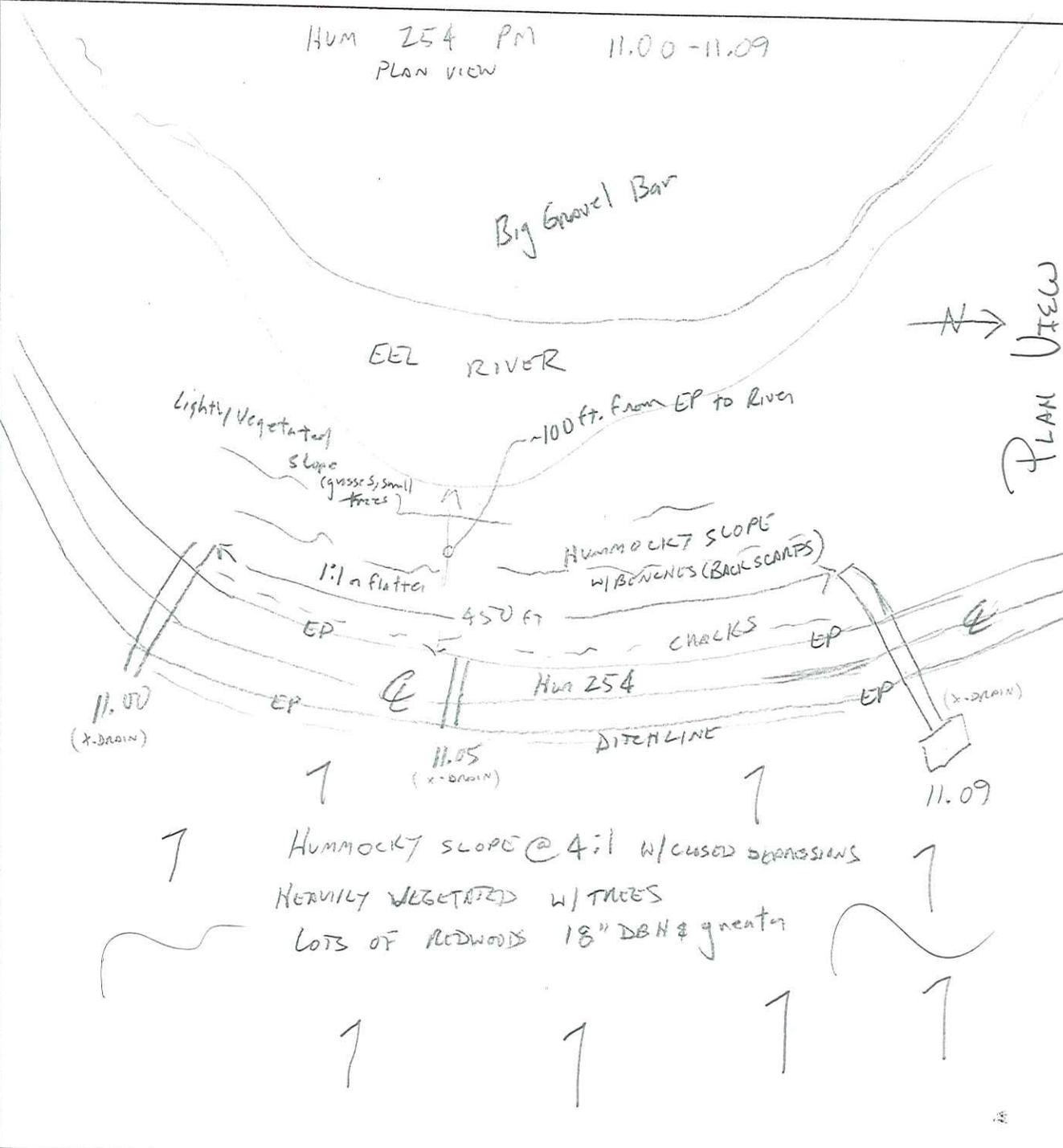
Reflects available information for contracts at the time of DAF preparation. A revised DAF is not required for changes – use normal Federal-aid procedures to adjust for changes with approval (per Stewardship) based on documented justification.

Describe: REDUCE DRIVING FORCE BY REBUILDING STRUCTURAL SECTION W/ LIGHTWEIGHT FILL & IMPROVING DRAINAGE (REPLACE CROSS DRAINS & INSTALL DEEP UNDER DRAIN). INCREASE RESISTING FORCE BY REMOVING SATURATED SIDE MATERIAL ON LOWER SLOPE & REPLACING W/ RSP BUTTRESS.

U.S. Department of Transportation  
 Federal Highway Administration  
 California Division  
 Damage Assessment Form (DAF)  
 Title 23, Federal-Aid Highways

Report No. CSC-CTD1-198-~~6~~  
 Sheet No. 4 of 4  
 Applicant CALTRANS  
 No Scale

Sketches and/or Narrative



Miscellaneous FHWA Approvals

Reflects available information for contracts at the time of DAF preparation. A revised DAF is not required for changes - use normal Federal-aid procedures to adjust for changes with approval (per Stewardship) based on documented justification.

Describe:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	254	11.0/11.1		

REGISTERED CIVIL ENGINEER DATE **PRELIMINARY PLANS FOR INFORMATION ONLY**

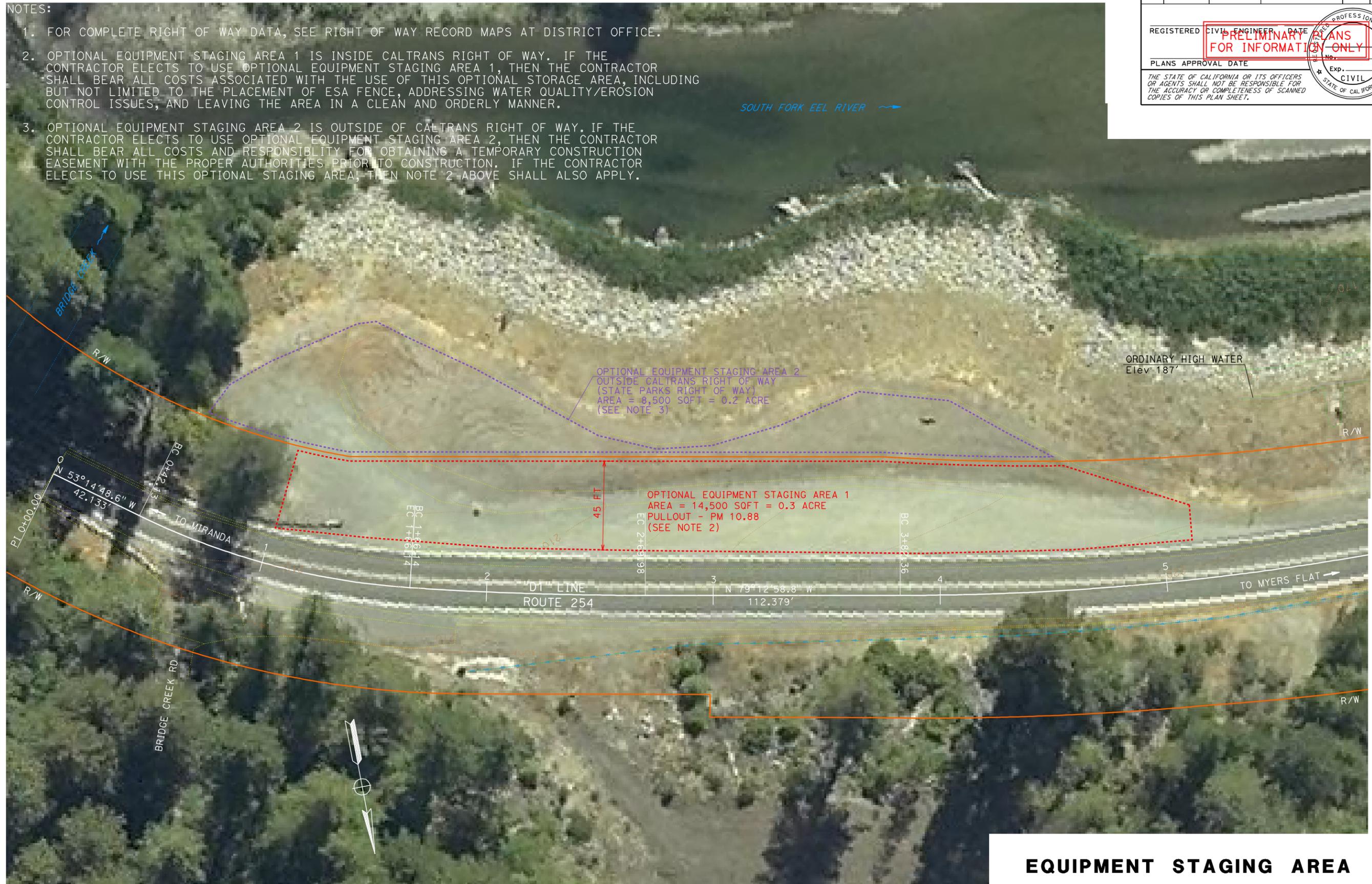
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

PROFESSIONAL ENGINEER  
Exp. CIVIL  
STATE OF CALIFORNIA

NOTES:

- FOR COMPLETE RIGHT OF WAY DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.
- OPTIONAL EQUIPMENT STAGING AREA 1 IS INSIDE CALTRANS RIGHT OF WAY. IF THE CONTRACTOR ELECTS TO USE OPTIONAL EQUIPMENT STAGING AREA 1, THEN THE CONTRACTOR SHALL BEAR ALL COSTS ASSOCIATED WITH THE USE OF THIS OPTIONAL STORAGE AREA, INCLUDING BUT NOT LIMITED TO THE PLACEMENT OF ESA FENCE, ADDRESSING WATER QUALITY/EROSION CONTROL ISSUES, AND LEAVING THE AREA IN A CLEAN AND ORDERLY MANNER.
- OPTIONAL EQUIPMENT STAGING AREA 2 IS OUTSIDE OF CALTRANS RIGHT OF WAY. IF THE CONTRACTOR ELECTS TO USE OPTIONAL EQUIPMENT STAGING AREA 2, THEN THE CONTRACTOR SHALL BEAR ALL COSTS AND RESPONSIBILITY FOR OBTAINING A TEMPORARY CONSTRUCTION EASEMENT WITH THE PROPER AUTHORITIES PRIOR TO CONSTRUCTION. IF THE CONTRACTOR ELECTS TO USE THIS OPTIONAL STAGING AREA, THEN NOTE 2 ABOVE SHALL ALSO APPLY.



**EQUIPMENT STAGING AREA**

SCALE: 1" = 20'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 NORTH REGION ENGINEERING DIVISION OF ENGINEERING

FUNCTIONAL SUPERVISOR: FERMIN BARRIGA  
 CALCULATED-BY: FERMIN BARRIGA  
 CHECKED BY: FERMIN BARRIGA  
 DESIGNED BY: FERMIN BARRIGA  
 REVISIONS: REVISED BY: HORACIO PARAS JR, DATE REVISED: FERMIN BARRIGA